NEWS IN BRIEF **Underwriters** switch

THE Institute of London Underwriters has rejected ICL's DME/System 4 on 2960 as a replacement for its seven-yearold ICL System 4/50, in favour of Splitting its workload between a Univac 90/30 for batch prucessing and three Honeywell Level 6 minis for data entry.

Battle over splitting its workload between a

Going it alone

GLASGOW District Council has cill its data processing ties with the Strathelyde Regional Coun-cil, and is to establish its own computer services department by installing two Honeywell Level 66 systems. The machines, a Level 66/DPS-44 and Level at6/20, will be delivered next

IDPM elections

NOMINATIONS and motions for the annual meeting of the institute of Data Processing Minnagement should be submitted to the Secretary-General at 12 Henrietta Street, London, WC2F 8NU by 5.00 pm, Wednesday, July 18. The meeting is In be held at the Royal Florse, and have been threatened with guards Hotel, near Charling yet further cuts in funds. Cross Station, on Thursday, July 26 at 4.30 for 5.00 pm. affecting universitles across the country, are likely to be aggra-

Memorex link-up

introduced following the new XEROX Sigma 0 mainframes at government's Budget, but the the Comshare bureau in London effecta of theae are as yet not are to be interfaced with determined. £500,000 worth of 200 Megabyte Memorex 3675 disc drives using keeping up with inflation, and to a special interface called the prevent universities "eating ichunnel developed by Comtheir own flesh" by stopping spending on capital and

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SIGMA

Products launched in time for WP Fair

COINCIDING with the Word Processing be upgraded in the field for £2,202. Exhibition at Weinbley this week, a spate of new products have been announced by both

In an effort to increase the appeal of its ink-jci printer, IBM has introduced a new high-speed version that can print 184 characters a second, at double the normal speed, with reduced character quality. The usual 92 characters a second can also he selected. Seven different typestyles are available instead of the five hitherto.

CUTBACKS in student numbers

new controls from the Univer-

to bitter battles over enrolment

ot Brunel University's Computer

structed to cut their intake from

50 students to 40 for next year,

resolved to press abend with

tenching undepleted numbers.

These difficulties, which are

vated by economies still to be

UGC grants have not been

£840

£495.

£975.

£1895.

£825.

£1675.

£1095

£193.

£2168.

Rebelliona leaching staff, in-

Science Department.

System/34 small business system is called Wordpower and wus developed by Professional Computer Resources of Illinois II documents from standard paragraphs, and The Dual Speed Document Printer, asit is called, costs £19,138, but existing units can with a list of names and addresses.

The new Wordplex 4 can support up to six expanding the top end of its word processing screen typing stations and four printers, and range by humching in the UK a software hardware and software suppliers, including a small-scale shared logic system from AES shared-logic system and the 1.3 three-Wordplex and WP software from Altergo for station cluster. At a price of £48,450 it is WT78 word processing terminals. Combeing launched by AES Wordplex under the ammications and document storage on a being launched by AES wordpiex under the slogan "simple shared logic". There are 32 Mbytes of document storage, half of it on a fixed disc and half on a removable cartridge.

Immediations and not mean storage of a large scale will be its main features. The company sees word processing moving towards being combined with data process. fixed disc and half on a removable cartridge.

Altergo's WP software for the IBM sing, and the WPSH is a step in that direc-

Jacquard UK will be launching the Jam stand-alone system at the Weinbley Jair. concentrates on facilities for ossembling. This provides simultaneous word and data processing and communications with increased power compared to earlier Jacquard

cash cuts Standards institution hos approved the fermation of a new committee to develop a standard at Brunel

camputer graphics programming language (CGPL).
Ta be colled X3H3, the contresearch while toking more hrought about by cash limits and students, the Committee has impoaed limits on student sity Grants Committee have led numbers inatead of on funds. If any sludents are accepted over

THE American National the work will be the definition of

Among the first abjectives of

Ansi committee set up to develop graphics language

mittee is being convaned by Dr Pater Bono and will hold its inau-gural maeting from September 19-21 at the headquariers of CBEMA, in Washington. Dr Sano, of the Naval Undorwater Systems Centre, Naw Landon, has been extansively invalved in US and ntsmational graphics octivities

two end three dimensionel output primitives, viswing transforms tiano, end interaction. The CGPL effort brings to

three the number of campletely now otendards baing developed in the US.

Early lest year, the Codasyl committee dedicated to crooking of Common Deersting System Command Language (COSCL mel for the first time (CW, March 23, 1978; while Ansi in the for the purpose of defining a standard text processing langu-sgs (CW, August 24, 1976).

Systime sets up software Personal Computers was time, and that by implication marketing group

their numbers reduced, and the PROMPTED by requests from sharing out of the cuta has been Its uaar group, Syatime has set up a software marketing group the subject of much atrife in the to sell o variety of RSTS-hosted This particularly exasperated application system and ware the Brunel lecturers who knew that, with the current shortage pnckagea, including a communicotions facility colled SYS-

of trained computer people, there were 12 jobs waiting for each of their graduates. They therefore decided to accept 50 students while having funda for only 40, and they were then told that if they could manage on 20% less money, their allocation should be cut by a further 20% on the basis that they ahould a vallable. nave only 40 at udents.

It now appears that next term the final number of studenta will

the specified number, the grant

is reduced by the amount of fee

income the university will

receive from each extra student.

that it must cut rolls by 100 from 2.400 and this leads to a 20%

reduction in the intake for next

year. All deportments are

equally determined not to have

The overall effect on Brunel is

Bob Paralow, who is shortly to become head of the department, cutions as order entry, pnyroll, suggested that it was ridiculous and financial accounting. in the current economic plight to cut training in areas vital to Plassey subsidiary the economy.

applications for computer courses are up 55% this year, and Irying to kill the universities, but simply trying to deal with shortterm problems without con-

years' time," parslow sald, "everyone will be screaming 'where are our com-puter scientists coming from? The effect of these cuts won't be seen for three years."

The group, headed by Judy Jurok, will be supplying PDP-11 users in general as well as Systime's own user base. The latter asked the company to promote its softwore more actively, as many were unaware of the full range of Systime packoges

Among the application softwore to be marketed is the financial modelling system Finar, the word-processing Word-II, and programs for such appli-

He pointed out that UCCA fence Systems Ltd, has been set up within Plessey Electronic said it was tempting to think efforts in exporting equipment that both governments were developed under Project Ptarit was more likely they were at the world communications, migan and other products aimed command and control market thought to be worth £2,000 milover the next 10 years in NATO alone. The new monaging director, Bob Paterson, comes from Pleasey Telecommunicotions Systema, where he wus also responsible for Plarmigan.



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report generator, Surge, and two disc handling packages. The and Smnk, a multiple file inde-

Systel, the teleprocessing monllor which Systime is developing in versions for both the pDp-11 and the VAX-11/780, will not be mided to the list for some months, necording to a

Systime will also sell its user Access file management system, n sub-distributor in the my? xing system for smaller configuup was left by Sousan to V.

> Data Efficiency, Brewerde against this route. According to Sousan, change in UK marketing prompted by a telex from it nul Computers managing da tor. Mike Sterland dated Mi

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MUCKEY WEST MIDUND

Data Efficiency to Comp. Weekly this week, express?

surprise at the reaction at UK to the changeover % s

he was even more surplials

il group of dealers had |-

formed to make sure thera_

continue to have suoma

Apple products (CW July)

all existing and foture dis

would continue to receive

they are entitled to expen

gestion that Eurapple!

"dumped" existing distrik.

"Eurapple values Par

Computers as a customeri-

cospects their business's

The decision whether

appoint Personal Compates

Brewer, managing directer

reverse was the case.

shinis", Sousan said.

Data Efficiency, the sent

Accurding to Sousan, fee.

He said he was confider

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Computer Service Remota Computing MV8/TAD

BCS grading

ities of branches and apecialist

groups be widened and brought

into contact with employers.

colleges, and other professional

Under the proposnis, the

grade of Licentlate would be

abolished and mure people

would be encouraged to take up

membership through exemption

A MID-LIFE boost for the IBM

303X line, in the shape of a

stripped down 3033 offering 50%

from the Society's exams.

303X line boost

nolds in Paris.

NEB's future

• est certain.

four London locations - an

hutel lobby, a department store, a tourist office and a pub — and

owner-operators Cherry Leisure

report that usage is much the

heaviest in the pub. Meanwhile

the Post Office plans to make

Prestel accessible from 60% of

the nation's telephones by next summer — Details, page 5.

TWO new versions of its 1900

numerical control system

NELAPT have been released by

ICL: NELAPT 20 for small 2903/

4 users and NELAPT 40 for large

and medium 2900 DME installa-

WHEN the decade-old anti-trust

suit brought by the Justice De-

Partment resumes in New York today, July 19, IBM is expected

Either to halt its defence, seek a

a 5,000 million page search

Micro association

Anti-trust move

ICL additions

Computer dealers at the Changes plan

Computer dealers at the Change in UK marketinglet. THE Council of the British system (CW, July 5) should Computer Society is to consider

Data Efficiency is the imaster distributor forhelti Malekt in Society is to consider next week the report of the task force on membership (CW, October 12, 1978) which among other things recommends that the Society's grading structure the Society is to consider next week the report of the task force on membership (CW, October 12, 1978) which among other things recommends that the Society is grading structure the society is to consider next week the report of the task force on membership (CW, October 12, 1978) which among other things recommends that the society is to consider next week the report of the task force on membership (CW, October 12, 1978) which among other things recommends that the society is to consider next week the report of the task force on membership (CW, October 12, 1978) which among other things recommends that the society is to consider next week the report of the task force on membership (CW, October 12, 1978) which among other things recommends that the society is the society in the society is to consider next week the report of the task force on membership (CW, October 12, 1978) which among other things recommends that the society is to consider next week the report of the task force on membership (CW, October 12, 1978) which among other things recommends that the society is the society in the society is to consider next week the report of the task force on membership (CW, October 12, 1978) which among other things recommends that the society is the society in the society is the society in the society in the society in the society is the society in the society in the society in the society is the society in the society

A telex from Sousan san be simplified and that the activ-

Number 662

Thursday, July 19, 1979

gence. Both companies special-

Geographically, the match is ideal. Redifon Computers mar-

kets in the UK, Eastern Europe

and the Middle East, while

CMC-Europe covers most of

continentol Europe (a market

where Redifon is not

represented, hecause its original

products were licensed frum

Entrex in the US, and Nixdorf

had the Entrex licence for the

CMC-Europe does supply some products to CMC-UK,

be assigned by the operator to

go down, the system can be

reconfigured by loading the full

operating system onto the slave.

if the slave falls, the moster

At the more typical of the first

two user sites, the Leyland Uni-

part Data Centre at Oxford, the

combined effect of greater

usability - seen by ICL and

and the reduction in overhead is

estimated to give an overall

throughput improvement of between 10% and 30% over two

Shared filestore carries a

once-off charge of £30,000 and

tha necesaary Inter-processor

customers as the main benefit -

continues to operate as a free-

Should the master processor

either nuchine.

standing machine.

lse in key-to-disc systems.

business has been dwindling as

The new group has factories

CMC-UK concentrated on

in the UK and France. In the UK,

Redifon builds its own 16-bit

minis, displays and keyboards

In France, CMC-Europe does

a similar level of manufacturing.

although it buys its processors

OEM, mainly from Digital

duced a powerful new system,

Equipment. It has just intro-

and does system integration.

Microdala Reality systems.

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minimaker Micrudata, but this are likely to concentrate on joint

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Redifon and CMC-Europe in £50m merger

purchasing of peripherols, and

boards which could be com-

mon to the products of each

Redifon Computers' turnover

closed in March has not been

CMC-Europe has belween 700

and 800 employees and had u

published, but was close to £20

million; it employs 700 people.

for its last financial year which

products like displays and key-

automated office

A SMALL but innovative company in Hove Is to form the core of Racul Electronics' challenge for a share of the automated office market.

As forecast in Computer Weekly (December 14, 1978). Racal has formed it new company, Racul Information Systems Ltd, within the Data Cominunications Group, and as a first step has acquired 85% of Hyperon Consulting Engineers of Hove for about £250,000.

Using the Intel 8080 microprocessor, Hyperon has deveoped a range of microcomputer modules which are used in intelligent terminals, word processors and business microcomputers, using an approach strikingly similar to that adopted by Wung for its successful range of word proces-

Nowrenamed Racal-Hyperum. the company has a range of modules which include a standard processin hoard memory board, channel board and disc controller, which can be assembled in almost nationized multi-microprocessor configurations. These, as with Wang, distribute the intelligence throughout the system.

The company hos seven years' experience with microprocessors, having started with the Intel 4004 in 1972. Software includes a multi-task, multi-user operating system and a file management system. Products which have been de-

veloped and are available includen word processor, a dental Turn to page 56

ICL clears the way A BA **By Peter Hewitt** simple command from the master's console. Subsemently any work may

owned computer group with a

turnover throughout Europe of some £50 million has been

formed by Rediffusion, the

parent company of Redifon Computers.

Europe, which owns CMC-

France, CMC-Germany and nine

other operating companies

spanning continental Europe,

for £4.25 inlillon. CMC-Europe is

to be renamed Redifon Com-

puter Machinery Corp, RCMC,

and the two companies will

shortly lay plans for a five-yenr

Rediffusion is buying CMC-

bettor performance than the 3032 at the same price, is MAJOR new facilities which forecast by Ahsron Oriansky, case the way for ICL users from andyst with Desn Witter Rey-1900 to 2900 series systems are being introduced by the compony. They include the coupling of 1900 and 2900 systems under a THE NEB's Insac, Inmos and single-filestore and the ability to run job control statements from the 2900 VME/B operating sys-

Nexes ventures should survive. but the board's plan to float a national computer and , cc. Jem on 1900 series machines. tronics company (CW, June 28) The shared filestore facility, works doomed and the sale of nt which allows two machines to least part of the NEB's 25% of be operated as one, involves ex-ICL and 50% of Ferranti Is now tensive modifications to the 1900 series George 3 operating systein. But throughput can be Prestel and a pint faster than for two free-standing COIN-OPERATED Presiel receivers are now installed in

machines because tasks like dumping, high-level scheduling and disc file opening and closing are handled by one machine only. And if one of the two processors is a 2900 running under DME, time not taken up by offloaded 1900 jobs can be dedicated to running VME/B applications or conversion joba.

One processor, the "alave", is loaded with a cut-down varsion of the operating system. The link with the other, the "master" processor, is established via a

buffer costs about £10,000. There Is also a maintenance charge attached to the software to provide for necessary modifications under future releases of Georga ICL's work on retro-fitting

separate machines.

US bank sues Lloyd's for \$10m

writ served on Lloyd'a under-writers last month by Federal "J" policiea it took out with writers last month by Federal "J" policiea it took out with Leasing of Virginia (CW, June Lloyd's aa collateral for the 28). 55 underwriting syndicatea are now being aued for \$10 mill- Lincolnwood. The latter is also lion punitive damages by a Chicago bank, the Bank of Lincoln-

The Chlcago bank'a suit ia

FOLLOWING the \$630 million closely linked with the Federal sulng Federal seeking to recover

the First National Bank of Bos-

osseing show. Sut on the whole

ton.

this scientific age, the saknow-ledged inadequacy of Brian John-ston's arithmetic should be

minicomputer was programmed with the accumulated statistics of generations of willow-on-leather encounters. A VDU in the commentary box puts up a split-screen displey, one half going out on the TV screen, the other prothe commentators' eyes elons. Our picture shows Tad Dexter \$600,000. Another defendant is

(right) with Honeywell director David Crofts, sullying the virgin

EAGLE-EYED televiewers glued to their sets as the First Test with

india at Edgbaston turned into a faset of run-gatting, will have epotted a familiar but surprising name up there among the Gowers, Bothams and Vankets-

aghavana. Honeywall was the

It was Ted Dexter's Idea that in

hine essisted, and as a result,

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turf of Edgbsaton with their

machinery prior to the start of the match lest Thursday.

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guick verdict and then appeal; or appeal Judge Edelstein's tuling that It must produce EASTERN PROMISE further documents necessitating Computer Weekly International highlights the Third World, with

news reports from India and a fea-ture on Bulgaria which shows how the Eastern European countries are being brought even clear together through the dayelepment of com-puters. In addition, Fred Lamend REPRESENTATIVES of 22 microcomputer firms, mostly. fetallers are to set up a trade gives a country-by-sountry run down on the politics — external and Internal — of electronic meil. association, either for retallers or for the whole UK micro industry. They plan an inaugural industry. They plan an inaugural incetting in September. Details from Heather Hodgson, 47 Crestyell Road, Newbury, Barks.

FACTORIES IN SPACE

Pages 17-24

The big boys, IRM and ICL were out in force at last week's word

processing show. But on the whole it was a base of "more of the same." Our report includes an interview on the word processing business with Fred Wang of fast-growing Wang Laboratories.

ALSO......

Computerview on a microlesson

Downtime by Chad

Blemens in South Africa Blemens in South Africa BEMS adds to Solar line 23,000 jobs threatened Sales and Marketing Bit

introduction to Pascal . . .

JOB OPPORTUNITIES: PAGE 26-65

Boftware Pile



RAIR

COMPUTER WEEKLY

Vol. 27 No. 662 Thursday, July 19, 1979

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of companies in the microcomputer business the hard realities Take, for exemple, the situa-

tion that arose some three weeks ago hetween Eurapple, the European marketing ann of Apple Computers in Cupertino, California, Personal Computers, and Date Efficiency, Personel Computers was the company that, some 18 months ago, started operations by being the first to sell the then new Apple II microcomputer into the UK. Since that time there has been a steady growth in salea from around three systems a month to 100 a month. Now, the ground has al face value been literally whipped from under them by Eurapple, which has made Date Efficiency master distributor for

Apple products in the UK. Does this mean that Eurapple is a bunch of nasty ex-colonisis hent on subverting British industry? The change in mer-keting outlet was sudden, that is certainly true; and it could easily e irgued that Eurapple should have directly informed its existing distributors (which included Keen Computers and Lynx Computers as well as Personal Computers), rather than have It come out of the blue at

them from Dots Efficiency.
After all (and this is in no way meant to cast eny shedow of doubt on Data Efficiency) all anyone had was their word for heir appointment to begin with. .But in tite end it was not true hat the Americans were nosty.

bin for Americans it was just the

free from the deadening hand of

central controls, whether from

regulatory bodies or govern-

ment institutions. Free concr-

prise has flourished at all levels

prise seldom comes free or even

It could be, however, that be-

hind the DP scenes the Industry

is being manipulated by nn-

known groups. The suggestion

that such pressure groups

operate comes from David But-

ler, an influential UK consultant

who is seeking to convince us all

that "the prevailing opinion in

the computer environment is

formed by an amazingly small

Unfortunately, Butler does

not identify the porticipants of

this seemingly reticent group,

except to suggest that they

operate from behind closed

doors. However, specifically

ruled out nre such industry

hance or replace axisting sys-

tems - and not that of some

bodies as the NCC and CSA.

gift-wrapped.

few as 20 or 30'

A lesson not too late for the learning

In a letter detad May 4, Andre

Sousan, president of Eurapple

wrote to Paraonal Computers

managing diractor, Mike Ster-

land to clarify the position of

Keen in the UK, saying thut it

was a distributor for the

Midlands only, and that no

further distributor appoint-

He hoped that this would give

On June 15, Sterland sent a

Telex to Eurapple, compleining

once again that the lack of PAL

his business opportunities -

there were, for example, \$40,000

the clarification asked for

that led up to the change in stutus. Apple distribution in the UK provide something of an object lesson in trans-Atlantic business dealing, and also in trans-Atlantic misunderstandings.

At least from the beginning of this year, Personal Computers had suffered from a poor supply of spare parts and the important PAL cards for the Apple, and this was the subject of several Telexes between the company and Europple, It was also hit hard by the Customs strike, which held up some shipmenta, but not others, so making sensible stock control ahnost impossible. This also compounded difficulties by looding often worth of Apples at Personol punilive warehousing charges Computers that had been canon to the products because they nibalised to get spares for could not be cleared through existing customers. Sterland Customs. After five days, the went on to say that he was going rate hecomes £2 per kilo giving serious consideration to

On top of this came the over a period, and might pusappointment of Kecit Com- sibly take on another competing Unsporting, probably — not the puters as a distributor by Eurappic, Reen and previously been a Personal Computers the clarification offered and that To go back into recent history dealer, but the supply problems Personal Computers no longer for a while, some of the stages had prompted the change in wanted to distribute Apples.

Behind closed doors

- even if the computing enter- not encouraged, even if there

number of people, possibly as Whether It is in the shape of the

The installation team likewise

exercises a powerful role in the

industry. The pace of techno-

logical change largely depends

on the supply and competence of

DP personnel. Closed doors are

The company idso plays un-

important part. It is, after ull,

supplying the money which

supports the opinions of the DP

management. Doors in this orea

are normally left wide open in

order to monitor progress both

inside and outside their in-house

Power in DP is very much

centred in the marketplace. It is

here that opinions are formed.

mind-blowing sales bird from

was time to close them.

to one where Europple tell obliged to change its I/K dis-tributor set-up following what it viewed as a "hailing-om" by Personal Computers. In their terms this was not an unsound move. On the other hand, Personal Computers felt they only hinted that they might half out it they did not get the increased support they felt they needed a logical tactic to try and stir apsome action.

Unfortunately in this particulur game, Enrapple held all the

The lesson for anyhody looking of the microcomputer husiness is that it is lun, summlitting, demanding, moybe even chic. But nt the snme time it is a lungle where your financial ugular vein stands out a mile and everyone is a potential Dracula, When compunies like Apple have corporate growth argets that are very close to 20% compound per month, no-one gets taken prisoner - It is shoot

ments would be made in the UK. Back in March, Dr Robert Cloyton, chairman of GEC. Fuirchild, bemoaned the fact that UK education could not produce people with that mixcards and spares was affecting ture of entrepreneurialism, technical expertise and corporate management skill that had developed in the US.

In the microcomputer bustness, where it is all money-infront, and credit is often only ne exchange for the deeds of a house, all these attributes are aceded with a vengeance, Ondropping his dealer network top of this is the need to know the psychology of the supplier, and preferably (the heat defence product line. This was taken by Eurapide as a non-acceptance of possible) what he thinks before he thinks it. For he we well as sured, no one in this game is really going to have a genumely friendly husiness relationship. At the end of the day it is only a husiness business relationship. MARTIN BANKS

Ten years

ABBEY LIFE ASSURAN

AMERICAN EXPRESS

COMPUTER WEEK! JULY 17, 1989

JULY 17, 1989
IBM introduced in First mand language for engage for engage mand language for engage military and of 1871 there were over 7,000 company in the UK, the Common year.

The Franch Piet of plunned an entry late of plunned an entry late of plunned an entry late processing and formed to company, STD, the Soight Company, STD, the Soight Data Tronamiseies.

Japanese Trade and her Ministry delayed spent limport the country help 6600 in case it put in the Japanese own supercease expected in 1975.

merger

From front page turnover of £30 million h on which it made a pre-tur of £1.2 million; for the a vear it is forecasting me 8% nt £1.4 million on te up 19% ot £35 million Hors half the turnover, the was generated in Francis: but a substantial properthis was transfer paymen

whole rempany.

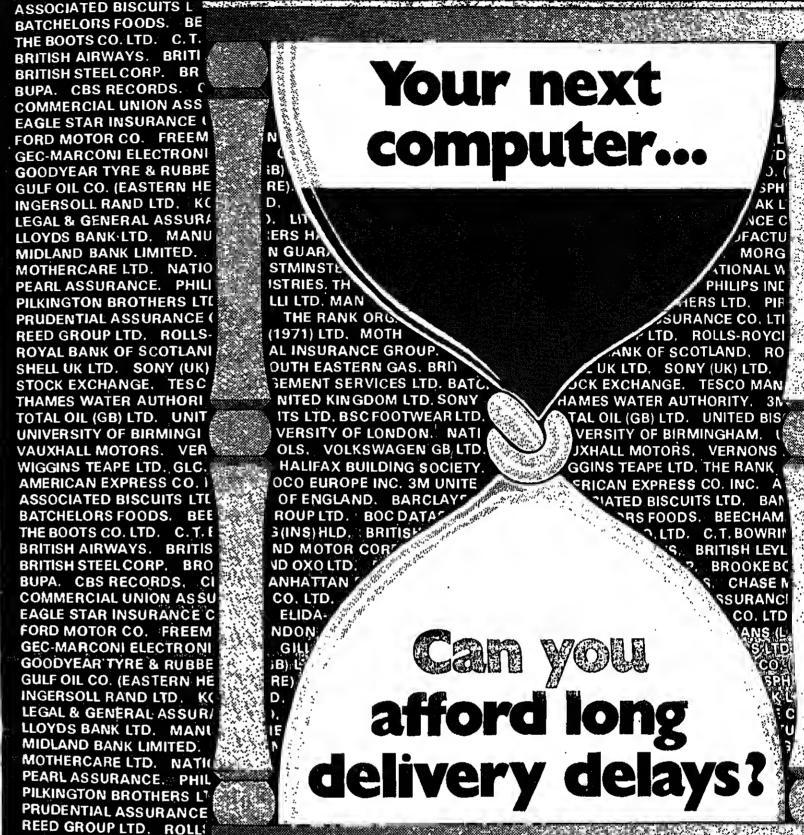
acquired by Perfec.

Redifon/CH

other companies in the gr

CMC-Europe was & from the US Com Machinery Corp In 1978 Consurting of Swedi Dutch financial Interests sermently CMC-UK was Microdala after the hits! in a bid to obtain contrals

Rediffitsjim's agreem with the Ontch-register drag company for CMCE Enriquean disposal, former parent company



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QUME SPRINT 5

TERMINIALS

V'l'100 Video Terminal

nology and Itel, The industry has no need for closed door policies or monipulators. Advocates of a select group of policy-makers should try opening a few installation BASF or the keenness of the counter a strange world — one manufacturer's field en- where computer power-shoring gineering force, power and opi- is notably widespread.

While governments and m-

momentous matters as com-

puter privacy, microchip sup-

norl and Prestel licensing lees,

ever fuster and more random

While IBM is challenging the

world, it is itself lighting off the

PCM might of such aggressive

organisations as Storage Tech-

disc sub-systems, communica-

tion devices and packaged soft-

scene of action.

THIS week's example of the strange things people say in the media about computers was sent in by Michael Coon, of Leasco, who wins

In Washington OC, a cunning manipulator opened a bank account with a few thousand dollars and then appropriated a pile of pay-in all paying aupplied for the convenience of customers. The next move was to use a manager of the character resources are applied to a supplied to the convenience of the c magnetic "in-charactor recognition system" to print the number of his

Sundoy Telegraph

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LOW GOST COMPUTER SYSTEM INCORPORATES:

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• PARAMARIS E — Add on Mand Olab System — Lines 28 Managhutes not drive. EXPANDABLE — Add on Hard Olek System — Up in 28 Megabytes per drive

MgDATA ARE LOOKING FOR OBALERS W DISTRIBUTORS [37] You can have the IBM-compatible Magnuson M80 in 90 days. benefits which include: field upgradable

No ballots. No delays.

No headsches.

Just a better computer. Fully IBM-compatible, and designed to give a lot more for a lot less.

The M80 is already used by major corporations such as Fairchild, Citizens Bank, Bankers National, Mitrol, Millers Insurance.

They couldn't afford to wait out long deliveries, either,

More to the point, they liked what the M80 has to offer. "Strategic Architecture" a concept with user

in one day; compact, just one quarter the physical size of comparable systems: unique micro-code assembler, plus many more.

And price. Substantially lower. than you would expect to pay for this type of performance. Up to 16 channels, up to 16 M Bytes of memory.

Substantially lower power consumption. Up to 50% less than any other computer of its size. (Take a look Bt your last electricity bill......)

The standard M80 system includes a central processor, control storage, channels, processor storage,

console display and keyboard. Naturally, there's B complete range of peripherals and the type of service you would expect from a major manufacturer.

It's worth looking at now. It could be yours in October.

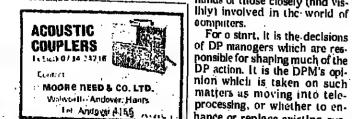
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plexed, pulse code modulated

voice or data channels, with dis-

ances of sround 10 kilometres

The main commercial isunch

is planned for Telecom 79 in

Geneva in September, but a de-

monstration system is installed

and working ovar a 14 kilometre

route between Slough and

41/2 kilomatres from Slough.

Maidenhead, with one repeater

The Post Office is also shout-

to place orders worth £1.5 mil-

lion for 14 systams, to be instal-

led in five routes between next

year and 1922. They are part of £5m worth of orders to be shared

out between the three main UK

tclecommunications suppliers,

The demonstration system

and the first four Post Office

routes use EM bps transmission,

sultable for 1 to 50 kilometre

GEC, STC and Plessey.

between signs I regenerators.

Plessey plans autumn

launch for 10 kilometre

Disting

Having a lovely time, really...

no longer the prerogative of computer users; you can now "time-share" a huilding.

The scheme, floated by an Australian firm of properly developers, allows you to buy a time-slice of a holiday home. The freehold of the property is yours, but only for a few weeks each year. The remaining a large party of Japanese tourtime-slices are held by other users, who pay a proportionnie fee. As in a computer system, you remain, with luck, unaware of their existence, and it's just like having the machine — sorry, the home —

all to yourself. We computer experts know, of course, that that's not reof time-sharing. Rent timesharing. In a primitive way, is what hotels do. Everyone shed at the back.

lasi man in hammers on the button trying to get into a full

home men ever find out about modern time-sharing technirelocated from room to room every time they wanted to slot ists into a contiguous block of storage. To enable visitors to translation software.

The crowning touch would come when they discovered virtual storage. Decent accommodation would then be reserved for active guests. Every time you went to sleep,

ques. We'd keep getting find us, the lift would have to he equipped with address

Honeywell accent on soccer

MY roving sports correspondent tells me that soccer fever, swccping the US, has reached Phoenix, Arizona, where staff at Honcywell's Information Systems Division have started np a league with no fewer than six teams. The stars come from Honeywell's factory in Scotland, where they played semiprofessional football with Scottish clubs before they were transferred to Phoenix.

To give identity to the teams. the Honeywell people have made a rule that each side must feature no more than two sccents. They have a choice of English, Scottlsh, Spanlsh-American, Swedish, and US do not distinguish between Geordie, Scouse, Cockney,

Still anathema for the Football League, women players are welcomed with open orms as it were, at Honeywell, which is hardly surprising. After all, in California they play mixed

Heaven help us If the holiday

SIGN of the times - Astro, hend-held ceiculator which reveils your horoscope. It accepts birth datas end returns a four-digit code that the menufacturer says includes the sun sign as well as the influences of threa

pleneta (Mercury, Venue end Mers) on your life. The machine can also compare two horoscopes - yours and a loved ona's - to filet. Or you can always use the device as a four-function calcula-tor. The Astro unit, which will cost shout \$50 in the US, is made by Kosmos International, of

One team is drawn from a locsl troop of Explorer Scouts which the company sponsors. This season their young legs players, so there is plenty of fared particularly well at the choice there. (I presume they start, but ister on experience took over.

This autumn Honeywell is hoping to interest other computer and electronics firms in setting up an Inter-company league. They have already played GTE and are wooing Digital, Motorola and others to

Weetabix Gamma Group seeks buyer to set up for bureau software house

WEETABIX, the breakfast cereal manufacturer, is seeking a buyer for its computer services subsidiary, Northamptonshire Compuler Bureau, which is located at Burton Latimer near Kettering and operates o Univnc

Weetsbix said that it would prefer a buyer already in the buresu business, and the company has prepared a prospectus detailing what its bureau has to offer. As well as the 90/60, the subsidiary will come with 35 staff and a large number of relatively small botch and remote batch clients. The bureau chalked up a turnover of £250,000 last year, but Weetobix three of the associate companies would not discuss profitability.

About a third of the bureau's business used to be work for Weetabix itself, but the cereal company now runs its own Univac 90/60 in-house.

GA 13, and Gamma Telecon. munications Systems. GTS sij that there was no connection between its decision to buyite out of the group and the simile move by the other two firm; even though the deala took place within a few weeks of ead; other.

Another associate, Gamm! Systems (London), will also ke sells DEC Detssyatems in the Greater London area. The former associates sll ples to change their names. The Gantma Group said that

was definitely not selling Gamma Business Machines, the subsidiary that it set up last year to exploit the market for IBM Series I based systems (CW, related maintenance company. June 1, 1978).

Computer Marketing in takeover

selves out.

puter Marketing has moved lurther towards the systems market by buying Micro Software Systems, a 12-man aoftware house started less than two years ago by four ex-Tops programmers, and by negotisting marketing rights to word processing software from a UK

Having started by writing applications software to order, MSS now has several standard packages including payroll, sales, and stock control in Basic for various micros, particulorly the North Star Horlzon one Alpha Micro systems, which Computer Marketing will now

Horizon, the word processing package will be sold as an addon to it. It will add about £2,000 to a £6,000 system.

ment that Systime is now

actively morketing applications software for Digital Equipment computers (CW, July 12), the

Gamma Group hos sald that it

will very soon be launching a

subsidiary company based in

Manchester to develop opplica-

tions software products for DEC

PDP-11/70 machines and pos-

The establishment of the new

Manchester venture will follow

closely on the shake-up within

the Gamma Group in which

in which the group held n

minority share bought them-

The three associatea were

Gamma Computer Products, the

albly for IBM computers.

They will join the range marketed as Comma Systems, which now apans prices from £6,000 to £30,000, supporting up to 32 users and available for rent or lease as well as outright sale, The North Star Horizon is an g-bit. Zgo-based machine, while

processor similar to the DEC LSI-11.
The LSI-11 itself is the processor used in the company's first smoll business system, the Comma VO3, which has won £500,000 worth of orders since its

the Alpha Micro uses a 16-blt

the systems destined for use a viewdata editing terminals sol n-house viewdata services.

Both firms are based in Esset and nre now moving into ets offices in West Horndon indusrial Park. Trading under both names for the time being, the combined organisation plans drup both eventually, in favor of its hrand name Comma S);

The first order for the Alpha Micro based Comma la system is worth nearly £20,00 and comes from a nearby fir. New World Kitchens. It is duer be delivered in October and si includes 128K of RAM, and? megabytes of disc espacity.

TIM PALMER REPORTS ON DEVELOPMENTS IN PRESTEL

Local access for **Problem** of VAT most by 1980

60% of UK telephone sub-

The Post Office plans, Just

published, also involve the

sunch of a full public service in

London on September 11, and a

change in the charging proced-ure, to take effect from the end

Immediately before the Sep-

tember 11 launch, the Post

Offica will implement a major

change in the arrangement of

the Prestel computers as a result

of which, for the first tima, in-

formation providers will update

the database on GEC 4000 series

computers at one centre, and the

updated pages will be transmit-ted to other centres for public

access. At present users access,

and information providers

update, a single physical dota-

base at Gresham Streat, London,

After the switchover, Infor-

mation providers will update

computers at a centre in Cler-

kenwell, and their updates will

of the month.

cspacity and the gaographic coverage of the Post Office's A THORNY little problem over VAT and Prestel has arisen, and information providers and the Prestel viewdata service is pisnned over the next 12 months, at Post Office are anxious for a ths end of which tha service should be in local call reach of

There is no argument that VAT is chargeable on sccsssea to Prestel, since it is a service. However, it seems equally clear that page charges, which are specifically for information, shauld be zero rated for VAT, since they are of a kind with newapspers and books, which are zero rated.

But the Department of Customs and Excise goes strictly by the book, applying the rule that VAT is chargeable on anything which has not specifically been assigned a zero rating - and of course the "book" was drawn up lang before Prestal was more than n gleam in the aye of a few imaginative Post Office people.

Some assiduous lobbying of MPs is therefore needed to get what is clearly an anomaly resolved in favour of the Informution providers. The tasue goes beyond Prestel, because electronic informatian services of all kinds are likely to appear over the next five years.

public access computers at two new centres, in Wood Graen, Essex, and st the Fleet exchange in the Clty of London. At the end of this month, the

Post Office will change the system of charging users for Prestel sccesses. Hitherto, the Corporstion has levied a halfpenny chorge for each page a user calls up, in addition to the standard charges for the phone call. Thus the minimum price for any page was 1/2p. (Most. poges additioally carry a charge imposed by

the information provider.) In future the Post Office will charge simply for connect time to the Prestel computer - plus the phone call charges -- so that the price on each page will go in full to the information provider. The new Post Office levy will be 3p per minute during business hours and a penny a minute for evenings and weekends.

In December additional London centrea will be opened in Eltham and Ealing, and Prestel will move out of the capital with a centre in Birmingham.

Esrly next yesr, Prestel will begin to blossom, with additionsl computer centres in Edinburgh, Manchester and Croydon, and local concentrators in Nottingham, Glasgow, Liver-pool, Luton, Reading, Savenoaks and Brighton. At that point, almost 50% of telephone subscribers will be in

reach of the service, and by the middle of the year this will in-crease to 60% with centres in Kingston, Leeds, Cardiff, Chelmsford and more in London, plus Dataplex links to Newcastle, Bristol, Bournemout and Norwich. The network will then have the capacity to support 70,000 business users and many more domeatic sub

PLESSEY, in partnership with cable maker BICC, now has a exchange circuits which Plessey fully developed optical fibre believea will be tha first big in transmission ayatem for public ternstional market. telecommunications use. It is capsble of carrying 120 multi-

The company is developing systems for 34M bps and 140M bps transmission, which it says it can have ready whan the need arises. They carry 480 and 1,920 channels respectively.

Although optical fibre transmission is atill more expensive than copper, costs are falling fast and Plessey believes that within five years it will be taking between £7.5 and £10 million of a £40 to £50 million market.

Overseas holiday booking system

BOC Datasolve la developing a computerised booking admin Istration system for Pontinental the overseas holiday club company. The system will in the first instance provide confirmation of bookings and produce invoices for the 70,000 tourists using Pontinental each year.

TACAMINE INCUITACI (CROS)

PO's role changes

ment, the Post Office hes notified Prostel Information proiders that II will have to suspend is traditional role of common carrier, under which it allocates space on the service on a firstome first-served besis.

The reason is that at least until 1981, the system capacity will be limited to 280,000 fremes — but demand from existing and poten-tial information providers would Contracts with information

Saptember, and in prectice, the Post Office's warning is likely to meen that the handful of the 164 IPs who have booked the mini-mum 100 pages but are only using one or two will be saked to make way for others desperets for ed-ditional space. The reason that come organ-

isations booked space and have not used his that their main intgreat is in market trial results which come autometically to in-

Auditor hits out at low control levels

A REMARKABLE attack on the "alarmingly low atandard of inherent control" in msny computer systems was made in London last week by Grseme Ward, president of the Instituta of Intemal Auditors.

The Institute was concerned, he said, about the low standard of computer auditing, both in the public and private sector. However, unlike many observers, it did not sae computer fraud as the major pro-

"Far more significant is the fact that many organisations are manufacturer. process the wrong data in the

It was vital he went on, that ntemal auditors csma to terms with computers and improvad their knowledge of business data

VASECTOMY

Her of chaits & sand this ad, place is

ested, to expect them to become "expert aoftware dealgners" but more tools and better computer systems were required to enable auditors to do thair job, to evaluate the controls.

"Miniscule" reasarch had been devoted to researching the needs of computer ouditors and providing tools for tham to work with. The Institute was convinced that the answer lay in the availability of flaxible and powerful software, provided in the main by the hardwara

"Pressure must ba put, If necessary by auditors on their amployers, certainly by purchasers on computer suppliera, to provide systems and software which are inharently controllable and which can ba independently certified as being

"The practice of many com-puter suppliers of selling hard-ware for which easantial software has not been davaloped can only be described as irres-ponsible and the auditor has a role in ensuring that the same standards are applied as in any other contractual relationship,"

Ward concluded.

Alan Benjamin, the departing director-general of the CSA, said in reply that software was made for systems, not auditors, It was the customer's responsibility to order secure computer systems, but many would not apend the monay required.

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GILB'S MYTHODOLOGY Towards clearer analysis of a design specification

THE tool discussed in this column. the Quota/Control Table simply a format for stating in decisions proposed in the col-(Q/C), is o quantified extension of the Function/Attribute Table signer on the approximate effect which we showed in our last which his/her design decisions column (CW, July 5), I shall il- are expected to have. If they lustrate it by continuing to use have no effect, there is no reason the example of a specialised to make them et all. So presummaintainability design which ably the dealgner has some was used in the two previous knowledge of the effect of a decolumns. If you don't have these sign decision, and should be required to state an opinion iwo columns handy, I hope the example will speak for itself.

in any system design process, tainty of the decision. even a fairly small-scale one, a large number of decisions must he made to give us the system of the designer. It also allows a attributes we want. In many design situotions we can afford to the progress towards the design use an "nverkill" method. We simply overdn the qualities, and can afford the cost and the lime tainty, of the achievement of to do so. In other situations we these goals; the risk of auccess is estimatable, And finally, it eases it based on previous experience. the communication of the de-If the initial system does not signer's opinions to design perform the way we want it to, review committees, which are we potch the design by adding or altering features until we are importance as the lessons of

In some systems neither of come more well-known (this will these simple approaches is be the subject of a forthcoming satisfactory. We must try to get it right the first time, and we cannot afford any more time or money than necessary to do so. lu these cases a higher degree of planning effort is the chapest alternative and the one that column of the table) from my takes the least project time.

e Death ag Poste poste p 11 de Savor de Conflic y p Novembre de Conflic

writing the opinion of the de-

including the degree of uncer-The Q/C lable does not only capture the immediate opinion cumulative picture to emerge of goals. It allows an estimate of the certainty, and thus uncer-IBM's inspection method be-

column). The illustration accompanying this column describes the Q/C table in a nutshell, i have used the system attribute specifications (left-hand vertical

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VALUE SYSTEMS FOR COMPUTER OPERATIONS -----

RTZCS/VALUE

Next, here in the Q/C table, i have made a designer's personal eatimate of the degree to which the planned level (restated in live, st the left) will be fulfilled. Whenever I have been in

(planned level)

(60 mins)

Problem recognition (60 mins)

Administrative deloy

Tool and document

collection (10 mins)

Problem onalysis

Change specification

Active correction

Locol correctness les 1

Globol side - effect test

independent change oudit

Recovary from effect of

placea, with varying regulority

and thoroughness. However,

when properly conducted, they

impose an overhead in time and

effort which is not inconsider-

As with many DP "dis-

it has always been common

rors, auch colleboration is an ideal opportunity for the ex-change of ideas.

There is planty of acopa, therefora, for extending infor-

mal and irreguler consultations

into something mora formal,

while atopping ehort of full-

blown project team inapection

One possible half-way house

publication, programs could be

eetablished practices.

(15 to 30 mins)

(IOOX acl. com)

problem (2 hours)

(same day)

(5 to 10 mins)

(5 mins ?)

g0 %

30%

g0%

50%

PROGRAMMER NOTES

software practice ucknowledge tinnity, and style by a "program

95% (bugs)

30 %

95% if online bug

orrection

30%

4%

20 %

-10%

30%

15%

50%

80%

201%

5%

doubt as to the degree of effect (30% + 20%) is fulfilled.

kind of quality control.

Even when the numbers estimated are unreasonably incorrect by any standards, they can be subjected to independent inspection by professional colleagues. And even when these colleagues accept meaningless numbers, as they will on occasion, they will have to accept responsibility for their in-adequate audit of the design decision. They will have to admit that the assertions of design effectiveness were con-

municated clearly to them. i do not expect the majority of readers to rush out and make extensive use of this technique. Their environment will not permit or encourage it even if they are able and willing. But the posaibility of such clear analysis of a design epecification is now there, on the public table. The possibility of a systams engineering approach exiats when

You can parloke of the feast whan you are hungry.

Do-it-yourself database kit

DO-IT-YOURSELF detebase

feolity is one of 40 new func-tions edded to the service, which has elso been enhanced with new economic databases covering, for exemple, con-eumer price indices and gross national product figures.

Puzzler

and General data processing de-partment in Cheitenham, con-tributea the following darts problem for readera' myatification: A top-class player gets 301 with only six derts, starting and finiahing on a double, and scoring in a different area of tha board with each throw. Where

umn which followed.

which a design suggestion will have, then I have indicated this epproximately with a plus/ minus deviation. These deviations are expressed in the same "currency" as the percentages and can be cumulated. Estimates of 20% ± 5, 10% ± 15 add up to 30% + 20 and -5, or in other numbers indicates that the designer estimates that the planned level of that attribute is sbout 30% fulfilled. But, in the worat case maybe only 25% (30%-5%), and in the best case maybe as much as 50%

. The numbers are only as good as the person stating them but the alternetive is unpleasant to contemplate: vague meaningless words and assertions which cannot be communicated to others and ere not subject to any

we are mature and motivated.

kit, which guldes e piennor through the pheses of datebees design, updating, end reporting, hee been added by Sceing Computer Centree to ite plan-ning and modelling system E18 ere Flia, May 18, 1978).

coveries", however, these tech-Called Ezdate, the new niquaa are far from being wholly new, consisting in easence of the systematisation of longfor programmers and daalgners to ask colleaguaa to check their work. As well as turning up er-

TONY CIMA, of the Mercantila could be the incorporation of an "editing" atep into the devalop-Much in the same: wey that e draft document is edited bafore did the six darts land exactly? See page 53 for solution.

development process MANY who spenk and write on checked for intelligibility, con- the live inventory and

that reading other people's progroms is one of the best ways of Ills responsibilities could ex- unintelligible progra furthering one's understanding tend to the incorporation of uf programming and its prorevisions and would certainly include verifying that And in recent yours, there has been increosing emphasis on the use of inspection to improve documentation was adequate. Indeed, the feasibility of any program editing would depend softwere quolity, bnth at the on adequate documentation design and at the coding stage.

being available.

The completion of the editing step would be a prerequisite for acceptance of the program into SE1 91.0. Structured walk throughs and code reviews have many advocates and are practised in many different ways in diffarent

to programming, lips opplications or spied

Are Your Staff Well-Training

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Il not, then the fault is probably yours for not planting the

NCC is running a seminar to demonstrate the most surface of the conference with open and techniques of training which are now on the matter ware engineering as it was; as it have ever thought of using self-instructions partially as it should be: and consuler assisted methods.

this seminar will put them in perspective.

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Joan Seth (SI 3) The National Computing Computing Oxford Road Mancheser MI (SI 3)

NCC seminar 4

SOFTWARE FILE

CA links up with **HPAC** compilers

to provide specifically European languages on its systems, Computer Automation has entered into an unusual marketing agreement with HPAC, of Oxford, giving it rights to sell the entire range of HPAC compllera on the Naked Mini LSI-2 and

Likely to be of most ralevance to the immediate future are HPAC's implementation of Coral and RTL/2. CA has also noted a remarkably high level of inerest in BCPL which HPAC uses to implement all its compilers and fully supports as a product in its own right.

50%(tell)

5%

10%

5 %

0%

20%

15-25%

10-30% -20%

hopefully, ease the par-

Half incopfed for spent

Both the Coral and BCPL compilers are already available os in HPAC's Fortran 77 compiler, first announced last year (Software File, November 30. 1978). The RTL/2 compiler ia due to be released shortly.

HPAC is also working on implementations of Algol 60 and Basic. In the longer term it plans to produce Pascai and Cobol compilers as well as a Mascot system to support Coral applications.

CA's agreement with HPAC is worldwide. It is likely though to

A feature of the HPAC com-RTL/2 and Coral is high. niler is that it can process either

Interestingly, one of the first customers for HPAC RTL/2 will Ansi 1966 standard Fortran or be ICI. The ICi front end has, up Fortran 77 according to the settill now, been common to all ting of a complle-time switch. I RTL/2 compliers, contributing also includes switchable options greatly to the enforcement of a for processing Hollerith data rigid standard for the language.

types and real time extensions. Despite this, the company is All the compilera will be available to CA users at £750 each, reported to have given wholehearted approval to the HPAC product, which it is likely marking a significant reduction in prices previously quoted by to use initially on the NM4.

There is already an SPL implementation of RTL/2 for the division maneger Mike Brown, the chance to make the software NM4's predeceasor, the NM2, available to users at lower cost but CA seys that it will be recommending HPAC RTL/2 on was an Important consideration both machines, in CA entering the marketing

According to a apokesman, this is partly because the SPL version is less efficient, being targeted at a register-based architecture like that of the software costs low.

HPAC RTL/2 has also been implemented on the Data General Micronova, Nova and

Outside Europe the HPAC compiler likely to be of most interest is Fortran 77. Fortran 77 has not yet been implemented be opplied first in the UK and by CA, though it does have an

Dijkstra tops bill at fourth software engineering forum

A FORMIDABLE array of software experts, including Professor Edsger Dijkstra (above right) and Jean Ichbia, one of the chief orchitects of Ada, will have a proportional transfer of the chief orchitects of Ada, will have been proportionally and the series of the conference as it coincides with the major exhibition. Systems, also held in Munich.

Full program details, in-Value of an 'editor' in the the chief orchitects of Ada, will be smong speakers at the 4th international Conference on available from Dr Douglas

side the US and represents an flights from the UK. important opportunity for softwere managers and planners to inform themselves of emerging Programme Needle for the discussional New on the Christian Page 1

techniques. A strong theme of the con-ference this year will be the application of automated tools to software engineering, in-cluding, for example, the use of computer aided development nvironments.

Such tools, along with aids to managing large software sys-lems throughout their life cycle, altracted a high proportion of submissions following the call for papers and form the subject of several major sessions. Among other topics to be

covered, both by practitioners searchers, are the role of software engineering in microprocessor work; the impact of language on software englneering and, the role of constructive techniques.

be, for which the respective Barry Boehm, Edsger Dijkstra, and Wlad Turski. Early reservations are ad-

Offered on bureau

PREVIEW, the package dave- BAL, loped by Langton Information Auto-Graph, generales Pastems to convert conventio-pally structured files into Prestel printer; plotting up to four

Software Engineering, to be held in Munich in September.

This is the first time that the conference has been held outside the 112 and annual to the side the si

Total now on NCR 8000s

A VERSION of the database management system Total has been Implemented by Cincom Systems for the V models of NCR's 8000 range. The new veraion is upwards compatible with that svaliable for NCR's Century machinas and supports both batch and online operation.

The DBMS aoftwara le backed up with Implementations of two supporting packages, the Data Dictionary and Utilities. The latter provides high-speed database losd/unload facilitles as well as statistical information to control the database.

THE latast release of A. J. Randall's Auto-Graph includes ar interface to the report generator package CA-Earl, enebling usera to access Auto-Graph facilities from the CA-Earl language in addition to Cobol; PL/I, and

lormat (Software File, March 9, grapha on a single pair of axes. 1878), is being offered for use on grapha on a single pair of axes. A permanent licence, including the new interface, is priced at £650.

UK Professor for top Ada job

A UK expert le to heed the Pentegon team working on the progremming support environment for Ade, currently defined by the Pebbleman specification.

He le Professor John Buxton, Deen of the

He le Professor John Buxton, Deen of the Coilege of Arts end Sciences et Warwick University, who will epand a yeer in the US co-ordinating the Pabblemen aftert for the high order lenguage working greup of Derpe.

The newe follows York University's proposel that it should set up a centre to coordinate work on Ade in the UK. This would also concern itself primarily with the support environment (CW, July 5, 1978).

The Ada test and evaluation neweletter reported that an update to Pabblemen should be ready by mid-September.

According to Naked Mini

CA, he said, saw itself primarimplemented as Report-il on lly in the business of seiling hardware and wanted to keep



Pascal for Honeywell

A PASCAL compiler is being developed for internal Honeywell use by Oregon Minicomputer Software, of Portland, Oregon, it will be based on the second generation Omsi Pascal-2 optimising compiler. The latter is the successor to

Oregon Software's Pascal-I compiler for the DEC PDP-II, which has around 400 users worldwide. Both versions are marketed in this country by Hourds Computing, of Stafford.

Pascal-2 will employ global register allocation and constant folding techniques.

Report generator for Datasystem

semi-interactive data file editor if requi. 2d for DEC Datasystem users are being marketed by Industrial and Commercial Computer Services of Kingston-upon-Thames.

the CTS 300 and as Report-8 on the COS 310, the report generator is driven by parameters the same principles as Report-II for £750.

A REPORT generator and a which may be input at run time

Features of the program include the ability to apply s variety of selection criteria, to scan selected areas of o file, and to accumulate totals or com-

The editor, ED-II, is bosed on

adding change, insert, and delete facilities. Both operate as selfcontained utilities which allow other terminals to be active

concurrently. Bought separately, ED-11 costs £550 while Report-11 and Report-8 each cost £450. Alternatively, Report-11 and ED-II can be bought together

The DP manager a 4300 who ordered a 4300

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Getting it right from scratch

THE beauty of hullding n new installation from ocratch is that you have the chence to get the computer room just right — and as the picture on the loft shows, Volvo's now High Wycombe contre was certainly started from scrotch.

The dirty old workshop was terned into a openk-ling new computer site (right) at a coat of £100,000 by Wright Air Conditioning (Birmingham), which also designed and iostelled the oir conditioning

The computer room accommodates two ICL 2950a, which ore handling work previously run at Volvo's site at Crick, Northamptonshire.



Phone loudspeakers for noisy rooms IN last week's Op Spot we had a hint relating to lacility, climinates luw-level background noise

with calls in a noisy computer coom.

porer

moving about at a distance from the device. Talk to jidi control at the same time.

Ualled Dorre, it has a volume adjustment. The rental charge for Dorie is £14 a quarter.

the use of telephones with a volume adjustment—and has a ent-out button so that the telephone facility as a means of helping the operator deal can be used in the conventional minner if de-

And, taking such aids a step further, the Post - According to the Post Office, Duric is Intended Office has introduced a small londspeaker primarily for domestic use, but is also suitable for system to be compled with the telephone. It the computer more environment, it would, for enables the user to conduct conversations while - example, allow the operator to tend a printer and

Altering unit status with Vary

status of units on the system : combiguration.

Hy means of this command rane and disc units, for example, are placed in an online or offlute state in the former, they may be allocated to jobs, while in the latter they may not.

A tape unit will, typically, be placed in an offline state so that authority with messages it can be serviced by an engineer relating to the entire system

THE Vary command is used by or cleaned by one of the opera-the HIM OS operator trialter the tors. The command to place tape unit 280 offline is: V 280.Offline

> In relation to systems cuttsales, the operator uses Vary to passion authority' and specify which of the various system message streams are to be routed to early device. For example, to give console 390 fulf

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The Set Manual Problem is the sales continued by the set of the sales of the sales

96151 a 9520 pt. stringl surfacepositive systems. Besidately as a feet term of the expension of the potent

execution to much a tert on their or type and influence from the atention their medium test matter of the control for the atenuate from the atenuate medium test medium test from the extra tert of the atenuate medium test from the atenuate for an atenuate from the atenuate for an atenuate for a test from the atenuate for a finite atenuate for the atenuate for th

more probabilities, as in the activate or the probability of the result of the SEST of the service of the set of the service of the service of the activate of

eg ochber over ler vet er falt upt ochber 11g ditt, Sel I Legat och och det vervenligt til en lege for tertposita ut

Control of a policy of the Pall of the order to the policy of the pall of the

मा अधिक मार्ग्य केर्नाक हुन भन्न प्रकार का स्थाप का स्थाप का स्थाप केर्ना का स्थाप केर्ना का स्थाप का स्थाप का अधिक क्षत्र में समाधान के अधिक अधिक का अधिक का स्थाप का

Forth Control Wisconson Roll Coll. Baltahor, -Telephore Woleppage (07.3), 50/877 Tutor B47KS

(system tasks, TP network. lapes, printers, etc), he enters V 390, Console, Roul = All, Auth

= All 'The parameter Auth = All enables the operator to use the Patisule to start and stap procedures, hold and release jobs, and carry out many other functions. An alternative is Auth-- IO, which will only allow him to enter continueds relating to

input/output functions. iuvolvei**i**. At the time of writing, those

cemen, huspital maintenance staff and blood transfusion operators. All await consider-

tors will refuse to run all new pay awards work if their pay rise ns nut come through by July 31. Non-operations, non-union persons may well agree with a report in a certain Midlands paper which described it all as a "You don't get your money until we get ours" disjuite, implying that the operators are being narrow-minded and selfish.

As we all know, operators in general are very much the poor relations of the computer industry, in terms of recognition. pay and career prospects. That being so, they often have to stand up for themselves.

it is unfair to label the WMHA

Managers seminars

conferences, or modules - all of which are to be held in London - will enable users to hear speakers who are experts in their own fields

Operations management over the next five years is the theme of the first meeting on October 17-18. Topics include future stratogies for the operations manager dato protection and security in the 1980s.

up for themselves

THE action taken by the operators at the West Midland Heulth Authority (CW, July 12) may

of their union, the National Association for Union of Public Employees.

Union of Public Employees.

It is interesting to note that Officers, the union to a Confidence of the Union to Confidence of the Union taken by the operators at the Union taken by the Officers of the Union of Public Employees. Authority (CW, July 12) may the local NUPE branch is made seem a merc gesture when compared in the operations in-volvement in the current Post stuff, including operators, programmera, data prep and data Office dispute.

In terms of persons taking control staff. The branch was formed about part and the extent of their acthree years ago when the com-puter staff broke away from the operators. tion, it is small — just 13 operators are involved and they are refusing to run some 16 special back-pay jubs for WMHA employees who have already

and pay rises. But, as pointed out in a recent Computerview, the effects of such actions are disproportionate to the number of operators

nffected already include the likes of West Midland ambulanable sums of back pay. In addition to this, the opera-

As one with an operations background, I view the matter from a different angle, although I do sympathise with the unforjunate WMHA staff hit by the

acting on behalf of and with the full backing of the local branch

INFOTECH Operations is breaking new ground with its international munugement forum (Op Spot, July 12).
Lutended primarily for the

operations manager, it comprises a series of sentinars which will examine developments in technology and their effect on the operations function.

According to inforech, the

Narrow-minded?—no. iust standing

By Bernard Allen

They left NALGRI ... they felt that the othe M members did me appreciate their problem -.

HINT OF THE WEEK

Pause, not Assign on procedure libraries

PROCEDURE libraries and the use of override card, DOS/VS environment are the subject of a hint! O'Reilly, chief operator at Astral Computer Service: he City of London. O'Rellly advocates the use of procedure libraries .

ave job control staff from having to keep stacks of p But, as he points out, problems can arise when the

ards are mispunched and therefore fail to care the function.

When that happens, the default files — those specified procedure's original Assign statements — will be test program instead. This will cause serious problems it ler ...

e application has a four-week tape cycle. To avoid such occurrences, don't place Assign state les on the procedure library. Instead, put //Pause itawhich will give control to the operator and inform to

unching error has been mude.
This is the theory behind O'Rellly's hint If the override Assign statements are punched corrvill replace the //Paose statements in the procedure.

hen run as normal. If, however, the Assign statements are incorrectly pure.

Pause statements will still be in the procedure at the me (see Fig 1). They will cause the system to give or

After this, the operator presses the end-of-block key ack of Assign statement will cause the job to fall with 27 ogical unit" message, and no harm done.

Igure 1: An example of a procedure which has nents, including messages informing the operator

perator and instruct him what to do.

RIBAPRS VERSION 0.0 17 BLOCKS PROCEDURE LIBRARY DATASYES * MONTHLY PROOF SORT RIBA. // PAUSE *** OVERIDE CARD IS MISSING -

CONTACT CONTROL. *** // PAUSE *** OVERIDE CARD IS MISSING -CONTACT CONTROL.*** // ASSGN SYS083,X'161' **的数别**

// TLBL SORTOUT, RIBA SORTED',20 // TLBL SORTINI, RIBA VALID',0 // EXEC SORT SORT FIELDS%(1,18,BI,A),SIZE%5000, FILES%1,WORK%1

RECORD TYPE%F, LENGTH%(36,,36) INPFIL BLKSIZE%2592 **OUTFIL BLKSIZE%2592** OPTION PRINT%ALL

// RESET SYSOOI // RESET SYSO02

Figura 2: A job to execute procedure RIBAPRS statements will override the / Pause statements // JOB XRUN

// EXEC PROC = RIBAPRS,OV. // ASSGN SYS020, TAPE, VOL = TAPE01 // ASSGN SYS021, TAPE, VOL = TAPE02 //OVEND

If you've an interest An Exhibition with a difference an exhibitor organised by exhibitors for exhibitors for exhibitors for exhibitors is very much secondary in the organisation of PACE. For some time leading manufacturers and distributors of peripherals have felt that there is a need for an exhibition restricted. An Exhibition with a difference profits is very much secondary in the organisers' minds to ensuring the exhibition meets the exhibitions' needs of attracting only those visitors truly interested in periphetals. "Already, with still eight weeks to go 80% of the stand capacity. But there is a need for an exhibition restricted." An Exhibition with a difference profits is very much secondary in the organisers' minds to ensuring the exhibition meets the exhibitions' needs of attracting only those visitors truly interested in periphetals. "Already, with still eight weeks to go 80% of the stand capacity. But the examendation of periphetals. "Already, with still eight weeks to go 80% of the stand capacity. But the examendation of periphetals. The exhibition restricted in the exhibition restr don't miss PACE

national Halel, Hammersmith on 11th, 12th and 13th September has been specifically tailored solely towards the interests of both OEM's and end users of computer peripherals. If therefore your main interest is in peripherals this new concept of exhibition organising will save you both time and money.

non of peripheral manufacturers' products covering the whole field nichiding plotters, visual display unus, printers, disc drives, raphies ternimals, digitizers. hi ona day you will be able to se all the exhibits at leisure and or confort without the distrachou of extraneous products and

In one compact area will be services because one of the ten a ambled a worldwide cross see- ets of the organisets is the restricting of participants in the exhibition to periphetal manufacturers and distributors. It will he easy for you to compare like with like; to obtain the latest information and to see up to the minute-developments being de-

A new microprocessor based drafting system



· and Onniay Systems Limited of Blackburn will be showing Summagraph

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1147.31 d il is easy to learn, easy to use, powerlul, efficient, accurate and cost 11 street and it will be on show at PACE.

New Company chooses new exhibition DRG Itusiness Machines, a new acqui-

Group, divides its energies between small husiness systems and peripherals. On the peripheral side the company will be using PACE to display for the first time in the U.K. the Y-l Data range of displayed drives and a more family of VDU tront Pechive. Mike Kilmartin, Managing Director

of DRG Business Machines, regards PACE as an opportunity to meet



Japanese Competition

E SURE NOT TO MISS THE

the D

for the organising of the exhibition on behalf of Pacewise Lid has had the assistance of a small committee of leading members the industry who have been esponsible for vetting all apphcants for space to ensure that with the one exception of pulishers of relevant trade journals). mly peripheral mainifacturers and distributors are accepted as exhibitors.

to peripheral products.

(Bristol) Ltd the man responsible

Because the organisers of PACE were auxious that this important section of the computer industry would have an exhibition of their own entirely declicated to their interests, a novel way of involving the exhibitous was devised whereby each of the first 40 exhibitors received the honus of one half share in Pacewise Ltd which entitles aftendance at the A.G.M. and a share in the prolits: though the making of large

the arrival of his company in the t.K., when he learned about the Exhibition at the NCC in New York. market with printers and printer mechanisms, prouch and alphanumeric liquid crystal displays.



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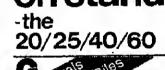
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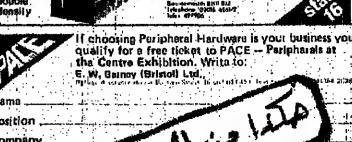


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PEOPLE AND EVENTS

Computing tournament

FOUR tenine of Yorkalstro achonichildran etand the choaco of winning o micrecomputer this week, in the finals of tho GMS Computer tournessent. The children, of 16-17-yearnids, wore successful in the slimination round of the com porition, which is sponsored by GMS, the Sholfisid based com-

outing bureeu. Mors then 50 tsams onterod this year's tournsment, in which how had to subinit dasigns concomed with the ergonomics of s

omputor-based offics.
Among the many imaginative entries was the suggestion of heavy hinking porieds for VDU asrs to svoid eye-stisin. Ons of he successful entries recom dod the use of polychic matic glass to countaract sols giaro and hoot.
Although they falled to reach

the final, a young teem of 13-year-olds from Shoffisid Boys ndspandent Olammor School ocelved a special commende lian from the judgms.

Jan Hiffter-Brook has been appointed sales manager for Ganonia Associates where he was previously

4331

4341



French country manager

MEMOREX in Europe has annconned the appointment of Jenu-Cinude Zannill as country manager for the company in France. As general manager of Memorex SA he will have responsibility for 300 employees and over 100 customers. Zanolh joined Memorex from Friden in 1971. He has been sales minniger for France and his most recent appointment was as marketing numager for the company's com-puter equipment products in the orropean headquuiters in London

Ken Heather has taken over as managing director of Progma, where he has been sales director slace tornaline the commune in 1971. He tope this he was head of peripheral. sales with Tally.

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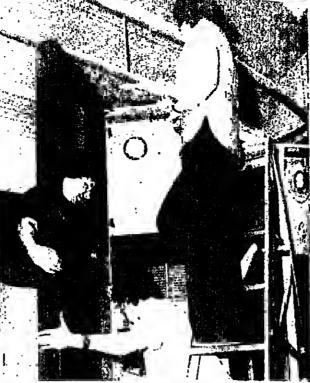
370 Systems — IMMEDIATELY

Please contact: Miss A. Tirelli

December 1979

Jill Partridge has been appointed as sales executive for Gordon and Goteli computer group, responsible for developing the clical base of its new computer centre foruted at Staines, Middlesex. For the past two visits she has operated and inunched her nwn catering business, after several years in business administ-ration with the Manugement Dynamics group.

Joe Oocey has become production control manager for Redifon Com-puter's factories at Frawley and Peacchaven. He was previously with manager, Ston Stoner has been appointed inventory manager, the was formerly production control manager with the company.



Girls join builders and fitters

SIX Redifon girls have found o tricol work within the center processors. When this he have tive to their former jobs os wirers with the company. They took the opportunity of joining the newly-formed computer proluction assembly, of which they ow form the nuclaus

Moxina Beardsell and Alics Rezyluk ore secombly operators to spensible for the initial elec-

complated the frames are print over to Jo Watt, Lyn Chepran Kothlean Cartes and Jayce West computer assambly operators start the building programme

Three of the glite are scenter at work secombling the coars

I'VE THREE OFFER!

OFF SICK THIS ME.

ALL SUFFERING

To The

FROM EYE.STE

I DIANT THINKOR

3

VDUS WERE THAT ?"

Total .

Derek Beosley has been appointed head of personnel and administra-tion of Data Logic. He has been Brian Variey, Buyac' 1 manager in Birmheban, lo become Northern regional (senior Industrial Lutur in the Business Studies department for the post the company's minicompac-sion to become Southern C. manager.

David Collins has become Jectini cal support manager for CMC, based in Manchester. He joins the company from paint manufacturers D. MacPherson.

Mortin Degens has been promoted to regional sales manager for Boeing computer centres. He will be based in the Home Countles, where he was bruserly a salesman.

Soccer results

at Rockwell

rectors of Rockwell-Collins (UK).

He was previously munoging direc

for of the firm, and is succeeded in this position by John Dickens, who will be responsible for operations of the company's new facility of

Mika Bray has been promoted to the position of field sales manager for Alaera. He has worked in the

ompany's sales division for the past

16 years, most recently in charge of

special occounts. He is succeeded by Liewellyn Walkins. Alan Jonas has

been appointed as a salesman,

transferring from the Alacra Service department where he was an engin-

er. UK services manager is John

Andrea Burns has become a sys-

tens analyst for the North-East hunch of Redifon Computers. She is

a funner programmer with NCR, A

junior systems unalyst for intern-ational marketing is Annette Pcoch,

ormedy a senior instructor for the

paged the company as branch sup-port manager for the fluoreign

ranch. She was previously with

Harris Systems as a systems engla-

Southern bruurh, Vol King has

Prysky, formerly southern area ser-vices supervisor,

Collins

Division 1
Addm A 2
Addm A 2
Addm A 2 Datasolvo Cue 1 Artis, 1 Datasolvo Cuy 2 Conghan, 2 Italiasilvo West End D. Datasolvo

Division 3 UJB 2 Computer Wookly U Forest 13, Allen 2 Hoskyns O, Forest 7 Jadou "8" O. Folesi d Olvision 5 NCH J. Oarrow ? Emystern 1, Gill & Outlies 6

CONFERENCES

Chances and limits of information processing is the theme of the International Symposium in Computer architecture, This will be the seventh symposium in the animal series sponsored by the Assoelation for Computing Machinery and the IEE Computer Society, but this is the first one to be held outside the US. Papers are solicited on any aspect of computer architecture, and those wishing to submit a raper should notify the program compaper should notify the program com-nities chairman before August 1, 1979. The conference is scheduled for May 6-8.

A CONFERENCE on simulation, tools A CONFERENCE on simulation, tools and techniques, to take pince from September 5-6, 1879, will discuss how to make simulation projects succeed through the use of techniques currently available. The conference will be held in Washington DC, at the Ramada INN-Rosslyn. Speakers will include Joe K Clema, trom Simulation Technology, and Claude Oelfosse, from CACI, the company that is organising the conference, they will cover such topics as simulation methodology and implementation methodology for large scale models. Defulls and registration information can be obtained from Vickie Cartton at CACI, 12011 San Vickie Chriton at CACI. 12011 San Viccine Roulevard, Los Angeles, Entifor-nis 80049, Tel 213-478-6311.

spects of computer usage, and also listimits and possibilities.

Organisational systems, information technology and socio-political and individual aspects will be considered, and the venue of the conference is the Vienna Hilton Hotel. Details from interconvention, Kongreborganisations sees in hill. tion, Kongreborganisationsges, m.b.H., PO 80x 35, A-1095 Wien,

TELECOM-78, the world telecommunica-ilons exhibition and conference will be held in Geneva from September 20-28. GEC Telecommunications, Pleasey Telecommunications, Standard GEC Telecommunications, Plessey Telecommunications, Standard Telephones and Cables, Marconi Communication Systems and Pye TMC are to join with the Post Office to show their products and services at the exhibition. Details from Norman Manners, Telcom 79, Kingsgate, 115 High Holborn, London, WC I. The event is organised by the Promutional Action Group with members from each of the participating Industries.

DIARY

IULY 18-20 IBM CUA Ligar nutbartitles group

Computer handling of large files, rourse, I. P. Sharp Associates, Buck-inghan Paluce Rund, London SWI, 930 Tel: 01-730/0361.

Workship on program transformation. BCS Formal aspects of computing group imperial College, London. 8-9 TZULIUA Pattern recognition and image proces-sing, IEE Computer Society, Chiengo, Illinois Contact: Pettern temgnition, PO linx 639, Silver Spring, MD 20991.

AUGUST 19-22
Third Bucky Minuntain Symposium on inferocomputers. IEE Computer Society. Pringree Ports. Colorado. Costact Michael Tindail, Dept of Computer Science, Colorado State University, Port Collins, CO 48532

SEPTEMBER 4-7 Compton Fall '79, IEE Computar Society, Capital Hilton Hotel, Washing-ton DC. Contact Compton Fall '79, PO Box 639, Silver Spring, MD 20901. SEPTEMBER 17-19

softwere engineering: IEE Computer Society. Munich, Oermany. Contact Prof Fritz Bauer, Institut fur Informatik der Technischen, Usivarsitat, D.s. Munchen, 2 Archstrasse 21, Postlach 90 94 90 Germany.

SEPTEMBER 21-22 Durabase (achhology for turge, ills-tubuled and intelligent dutabases, ACM German chapter, 8nd Nauhelm, Kuthans, SEPTEMBER 24-25 Computer software requirements. TMSA. Loodga. Tel; 01-242-40-16.

SEPTEMBER 28-28 Computers in cordiology. IEE Computers Society. Oeneva, Switzerland. Contact Computers in Cardiology, Contra de Cardiologia, Hopital Cantonal, 1211 Deneva 4, Switzerland.

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the two formilers of a new com-puter store set up to serve the West London area.

The company is Adda Computers and, bused in the Broadway in Ealing, it will be dealing in Pet, Apple and Nascom hard-

With his partner David Whitehead, Duuncey intends to provide a wide range of customer support services, including systems design, programming and hardware en-



Liproprociss spanished by "Computer Wheeky" Pala Processing and Systems International The leading UP computer article theory with the support of

other (PC Datamons Press specialist publication

MOTOROLA and Rockwell In- Devices division is expected to ternational are currently negotiating a two-way second processor, thus joining Hitachi 8s an alternative supplier, while Motorola will probably become sourcing deal which will give each a domestic US olternative

Rockwell's Microelectronic



256K-bit bubble inemory.

vanced Micro Devices and Zilog for the Z8000, 16-bit microprocessor, should soon be seeing the light of day from AMD's Sunnyvale, Callfornio, factory.

AMD has mode public the de-

tails of three peripheral control devices which, when connected In systems configurations with the Zilog processor, should give a processing capobility that genuinely starts to rival that of ninicomputer systems.

huild Motorola's 68000, 16-blt To allow full advantage to be taken of the processing power of the 16-bit device, the new peripheral circuits will employ 8 the second source for Rockwell's combination of complexity and

source agreement between Ad- 8-hit processors.

seen in one of the peripheral memory, the burst error proceschips, o device called a burst sor ailds hits to the end, in error processor. This is more than canable of deoling with dato transfer ut the rates used hy hard disc storage systems. The other two devices, a video

displny controller and a direct memory access controller, will have the ability to fetch their own commands from memory in the same way as the CPU.

The burst error processor, like the other two devices, sotisfies the main criterion for peripherul chips, that of unloading the CPU overheads wherever possible, su

With this device, block lengths of up to 1,000 hits are possible, and data rates can be as high as 20 Megahits per second.

accordance with a polynomial

calculation designed to detect

and correct errors. The 24-pin

device, which need not even be

connected directly to the CPIL is

designed to be part of a micro-

As well as monitoring the data

blacks between the huffer and

disc, it also monitors the data

going into the buffer, and con-

pares the two. If differences are

found, the disc controller then

inverts the incorrect bits, in

programmed dise controller.

Both the DMA und display controllers connect directly to the Z8000 bus. The DMA will he nble to lond its awn control parameters, and will also give the option to choin DMA operations tugether automatically.

The display controller is still in design, and AMD is looping to include several advanced features such as multiple screen windows with any number of cursors per window, and variable spacing with justified mar-

According to AMD, the burst

When a data block moves 8-hit processors.

An Indication of this can be from buffer store to disc the other devices follows: during 1980. As pan de

serond source agreement the will also be manufactured

Country store

The company, which is in Cambarley, has note:

oppointed European 44th the Lifeboat Associatemps,

of Ivvare products. The

ovailable in a wide with

disc formers, and their

covering most business and

ions from word property complete accounts subs.

A SHOP has been spen West Country to set to TRS80 Apple, Aluir, tilin compeny called T and Y lasson [Microcomputers 12].

The shop is in things.

Road, Bristol, when that

12-MONTH availation of Control Oata's Plato avatem damonal rations, end 1 % range of off-the-shell bein (CW, Occember 7, 1979) has been carried out by the Royal Navy at its School of Educational and Training Technology In he expected clientals of reusinass usars, seconiaty he liks.

Four Plate terminals were used in the study and the results ers being analysed for later publication as an internel report.
If the conclusions are favourable, orders for Pleto sys-

Manwhile, in the US, CDC see revealed that over the last six years it has made e million but that it will "break even" in the next three or four

cally on a chip within two or three years, claims Edward

felgenbaum, of Stonford Uni-

versity, Californin. He thinks

that o medical diognostic pro-

gram he has developed could

and will be sold as on integral

part of the spirometer equip-

ment it works with, thus pro-

viding a practical application for a subject that has hitherto been

regarded as theoreticians'

Felgenbaum's program, named Pulf, is an example of

what is called an "expert sys-

tem", containing in codified

Evaluation

of Plato

meosures the strength ond rate of a potient's breathing in urder to detect pulmonary disorders.

Toking all the different measmements, together with information from the potient's recurd such as age, sex, ond rute uf smoking, the program goes through the rules acting os an "inference engine" to work out the logic, and comes up with a diagnosis, such as emphyseina or bronchitis.

Puff is in regular use at the Pncific Medical Centre in San Francisco, where a doctor checks the machine's dingnosis each time, and he agrees with it between 90 and 100 per cent of the time. Felgenbaum thinks that the software could soon be incorporated in every spirometer sold, so that instead of getting doto out the doctor gets a diagnosis. A complete system could sell for less than

Felgenboum was speaking at the artificial intelligence summer school at Edinhurgh last week, where he described the latest developments in expert systems in the US, mainly in the medical field. The most advanced, he said, was internist of the University of Pittsburgh which had grown out of the well-established Mycin, Stanford's consultative system for diagnosis and therapy recommendation for infectious

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Rival to minis will follow two years time'

AMD-Zilog collaboration

THE techniques of artificial inleftigence will emerge from the
laboratory and be sold commersolfw on a chip within two or a c gram cautiously entitled AGE, on Attempt to Generolise, which enobles users to construct on expert system for any given domain, simply by conversing with the PDP-10 via Teletype. It is being merger with Unit, a package which helps deal with

> computer.
> Discussing the future of Al, Feigenbaum bemouned the nov-pinching on the part of both the US and the UK governments over funding for this field, particularly when compared with such areas os fusion research. "What could be more important than machines which think?" he said.

one of the most difficult pro-

blems, that of how to represent

the expert knowledge within the



onnual meeting on July 26.

5,000 mark and "few professio-

nal hodies cun hoast a compar-

able growth rate and fewer still a

more octive and healthy organi-

the past 12 months has been the

setting up and consolidation of

our administration ... The need

to build upon the solid base has

been achieved and we can pro-gress...to speed up recrultment

and increase branch activities."

When the IDPM was formed

His repurt gues on to say

COMPUTER WEEKLY, July 19, 1979

IDPM aims for 10,000

members by 1981

computer end office aquipment was presented to the company's Gesinghell Streat office in Lendon lest week by pupils of Woodberry Down Comprehensive School, Hackney.

18M and the achool set up a

twinning arrangement in 1876 almod et keeping IBM staff up-to-dete with education trends end teachers in touch with business (CW, November 25,

lage and paid £800 for it. The money will go into Woodberry Down's twinning fund for

INDUSTRIAL NEWS ROUND-UP

PO workers likely to accept pay offer

A POST OFFICE pay offer put to members of the Civil and Public Servants Association last weck will almost certainly be accepted and so end the strike action by operators and clerical staff that has been o mujor factor in motion and recruitment plus causing the telephone billing cuts in deportment budgets lincking of about £700 million.

Ihird month (CW, July 12), it looked as if a majur revision in numagement thinking would be required, but this latest offer is the same us that accepted by the Post Office Engineering Union, and rejected by the Society of Civil and Public Servants.

it gives a straight psy incresse of 9% with 7% for productivity. plus 8 further 2.25% in allowance for shifting the pay review date from April I to July I.

The SCPS claims that it has cranted o considerable strike fund and su can continue its action intil its cluim of over 20% "I think the Post Office will have to write off at lenst £40

million by the end of this strike," sald on SCPS spokesinsn, "and It will probably ba of least July, 1980, before the phono bill backlog can be cleared up."

Ban continues THE overtime and weeksnd

working ben by membera of the Society of Civil and Public Servants, which is affecting, among others, the Customs and Exclss

confinties.

A quick solution is prevented by the government's clampnlown un the public sectur which includes a freeze on pro (CW, July 12). A revision o With the strike new into its these mensures could be made next month, when the government's three-month moratorium

Bank offer

AN abrupt end tu all strike ac-tion by Midiand Bank computer staff (CW, July 5) come about this week following an improved pay offer by the bank.

The offer, which will give ur across-the-hourd rise of 15% plus 2.5% for productivity, and t lump sum of 2.5% 81 Christmas, was worked out through the mediation of the indspendent arbitration body ACAS.

2960 for Compute CDMPUTSL of Bracknell,

Berks, is to take delivery of ke third JCL 2660 this week. Ad-ded to its 2975 this is expected to enable it to provide soon over £8 million worth of services a year. The naw mechine will operate under DME to cater for growth in demend from 1900 users, who are sither con-adering conversion to 2800, or just coping with overload.

A TARGET of 10,000 members from the merger of the Institute of Data Processing and the Data Processing Management by 1981 has been set by IDPM chairman Neville Taylor in his annual report to the members, to Association, the executives of be presented at the Institute's the two organisations were combined and this year all the Taylor will tell the meeting offices are open. that membership has passed the

The annual meeting is to be held in London on Thursday. July 26 ot the Royal Horseguards Hotel, behind Charing Cross Station of 4.30 for 5.00 pm. ♠ The Institute of Data Process sing Management has signed a five-year contract with Stirling Professional Publications of Edgware Road, NW2 for a year book. The first edition, due in January, 1980, is limited to full members. Members who wish to be excluded or wont listed under another ad dress should write to the IDPM

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Music synthesis chip **Oxford Business** in production soon School THE programmable sound HK orders were gente generator chip announced ear-iler this year by tieneral histinments Microeler treates, the supplies will go to the AY-3-88110, promises much pames makers la the G

easier implementation of music rompany is taking to and sound effects synthesis numeracturers, and their numeracturers of hundreds of these but it has suffered repeated de-

One change id specification was made to improve yields, and at the same time the layout of tictcher. internal registers was modified made with lewer instructions in some cases.

of devices are possible Distributors do not exbe alde to offer small que.

The device enables: Sample quantities of earlier cessor overhead than pre-

Surgery on Apple II first of a series

THE Iden of surgeries for micro-computer hardware has proved populor enough for Micus, the specialist microcomputer group amung others. Institute of D sing Managers, to start planning for systems other than the

The first addition to the types of hardware to be "doctored" at the surgeries will be the Apple II, ond the first session is scheduled for August 23 at the offices of Digitus, 68 Oxford Street, Lundon, W1. The gruup is also plun-

equipment and softs

show, the Apple 1997 feature six users Ind advice on applications Two of the main to be cred will be communicated bigger computers, and a page specific pascal on the Apple specific

Forth for Tandy TRS

organiaed language that hos string sorts string sorts string sorts. It comes will a sort string sorts. the RCA 1882 microprocessor, the Tandy TRS 80 personniarithmstic. Their personniarithmstic.

This lotest version of the cspablity on smile and comes on single diskette... Among the facilities it offers ore enhanced keyhoord summand interpretation, and more sophis-

uperating system, and uperating system, and double with arrays and double

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. Examination (il any)

ISSUE NO 7

Over 10,000 turn out to see the latest in WP

processing systems announced over the last year by several blg computer manufacturers was the main significance of the annual International Word Processing Exhibition, held last week at Wembley. Otherwise the range of products on show from the specialist WP makers was not substantially different from last year, and the reaction of many visitors was "more of 78 stand-alone. The 7700 from ICL can only

There was no shortage of visitors, however; attendance at 10.011 was up 61% on last year, showing that intarest among the general public is growing at a healthy rate.

In the absence of any revolutionary mainstream producis there were plenty of gadgets on offer from the manufacturers for ottachment to their machines, runging from improved stackers that at last output pages in the right order: to sensors that find the edge of the paper on the platen; to mechanisms for adding to golfball typewriters to provide electrical signals for limit to a WP system. The Wnng xerographic printer which was to have been the main attraction of the firm's stand was not in the event shown, olthough it was at the Hanover Fair in April.

The offerings of the computer glants included the IBM 3730

Blg Blue's first sttempt at producing s true shared-logic word processor; ICL's 7700 Information Processing System, a twofrom Wang, a firm which is no newcomer to this side of WP. Digital Equipment was at the Fair for the first time under its own nama, showing the WS 200 shared-logic system and the WS

have one or two screens, with the ablquitous floppy discs and daisy-wheel printer, and with the two screens costs £17,500, Its intended goal is the tentalising one of being able to do both WP and DP, and as might be expected it consequently leaves much to be desired on the ergonomic slde, which is of course of critical Importance in WP. For Instance, There are dozens of functions operated by pressing a control key followed by a letter, and even with the menus that can be called up to remind one of the codes this involves a formidable amount of learning, Manipulation of columns of figures can be done, but

The link to an ICL mainfrome that can be set up does, however, provide many odvantages for file storoge and communications, and not least of all, report

the operation is complicated.



for typists to have to copy out pages of figures from computer printout, in order to provide a decent-looking report, and with the 7700 this relyping can be done automatically, an un-

doubted boon for all concerned. The trend towards getting raw typing input into WP systema from existing ordinary typewriters seemed to be gaining momentum. As an alternative to OCR, two finns have introduced or are working on attachments to go on IBM golfball typewriters to sense the depression of the keys and convert this Information into binary code for transmission to a word proces-

Dataword's Swedish assoclate, Wordex, is developing such a device which senses the movement of the typewriter's cams optically, and which should cost around £1,000 for each machine modified. This provides an input station much

Mulrhead, Logica's newlyacquired blood brother under the Nexos banner. Nexos Itself had no stand at the Falr, but was in evidence in the form of glossy hrochures displayed on Logica's tables, already carrying the Muirhead and Nexos names Also on the Logica stand was Microwriter Ltd, demonstroling

Cy Endfleld's hand-held word processor with its chord kcy-board (CW, May 11, 1978). Additions! facilities have been ad-ded to the Microwriter including a TV interface to provide a fullscreen display to supplement the hand-held unit's single line, ond cassette recorder to give un-

BDP Word Processing has a

similar device already available,

which it calls intype. In both

cases, the modified typewriter

can be used only for input, not

output, as the printing mechon-

ism is unchanged, unlike with

the Dataword Transwriter

which acts as a word processor

on its own. Roll on the day when

all typewriters are electronic

and such mechanical modifico-

Transmission of documents

from a word processor to a fac-

simile machine was demon-

strated on the Logica stond

using a fax receiver from

tions are unnecessary.

Big sales gained at the Fair

SEVERAL big celes were ennounced at the WP Feir. The largest WP order yet to be publicly ennounced in the UK wes for eix Wordplex 7 eystems, valued ell told at £500,000.

At the same time Logice VTS has added enother building society to its customer list. Following the Leode Permenent (CW, July 12) le the Huddersfield end Bredford which is buving a single seven-estation. buying a single seven-station

1CL took its first order for a 7700 from Ipswich Borough

Council.

I pawich is inetalling a 2903 together with the 7700 to take over the work currently done remotely on the County Coun-cil's 19048. The 7700 will work independently to etert with, doing both WP end DP, but an integrated eystem will be deve-loped with the 2903 over the next two years.

Wang well placed to take share of a growing market

processing business wat at moin reason for Wegit

impressive results last pur

word processing account to

only 30% of its income. Beisne

5% and 10% comes from a

bureau and the other Man

65% from its computer busines

2200 small computer, introduct

some 10 years sgo, with

brought more income lett is:

than any other productive.

But Wang's VS series d

mainframes, snnounced like

1977, looks set to overtake de

2200 in sales. In 1977-78 VSuta

were \$8 million. Last year the

shot up to \$60 million. And her

yeor Wang expects them!

The VS series is rough comparable with the IBM &

with the recently announce

VS-100 (CW, June 7) lining:

against the 4341. "IBM offers a lot "

memory than we do but.

systems have greater intens.

capabilities and are a

chenper," said Wang. "Bu:

faults have a big operating

tem overhead so we this

systems after a hetter po-

Wang has sold about to.

systems. If puts a su

emphasis on selling their agents, mostly suffware fund

Watte Is not selling again-

reputation is in the small be-

ness system area with the 25

We're now building upwar

"We linve been selling"

systems to 2200-type custor

buil in the bust year we have;

more emphasis on nation

necounts - the larger &

punies. We are getting into communies through infinite communies through infinite departments which want as

tem for a particular applie

What about sneven bigger

from that.

performance ratio."

reach \$120 million

The mainstay here is sub

very high and are growing "We do train users but we,, DEMAND for word processing systems has given Wang Laborstories a 63% increase in urnover to \$322 million in its package for customers al wirnt to do their own training? inancial year which ended in une 30. And net profits rose the business will go." over 60% to about \$28 million. Although growth of were

Orders for all its products stand at \$160 million, nicre than twice the figure of n year ago, and that figure is nil the more Impressive becouse Wang says II normally ships products within 10 weeks of receiving an order. At this rate it will easily reach its target of a \$1,000 million turnover by the early 1980s. "Our very high growth is due

to our word processing business in the US," Fred Wang, vicepresident of market plonning and development and eldest son of the company's founder and president, told Computer Weekly at the Word Processing Exhibition, "But word processing is now growing fast in Europe and the Far East ns well and next year it will get going in South Americo."

Wang is well placed to take advantage of most of these markets, it has subsidiaries in Bclglum, where it has its European neadquarters, the UK, France. West Germony, Demmork, Swilzerland and Australia. It also has representatives in Africa and Eastern Europe.

About 40% of its husiness came from autside the US last year, with Europe accounting for about 25% of total business. The Dotapro research organ-

Isation named Wang as the Nu l word processing system supplier in the US in 1978. Fred Wang cluims that worldwhile the computty is top in screen-based sysems, with companies like Vydec, AES, Wordplex, IBM and Xerox among the other leaders. Industry estimates of the size

of the word processing market put it at between \$818t million and \$1,500 million.

The word processing market is not without its prublems, however, "Support is becoming a very difficult aren." said Fred Wang, "You're not just Installing hardware — it's a complete systems approach. You have to re-think the way offices me run n somo cases.

system to put Wang let ninong the big boys? O. research guys are now finale; the VS-100 prototypes at "We give a very high level of support compared with the computing side of our husiness: Iniven't any time yel lowers trur peupla ore only one step consultants. Support costs are



ICL's venture into word processing, the two-station 7700 in

Logica attracts Newman from Palo Alto

DEVELOPMENT staff have been working at Xerox's prabeen on the move around the WP companies. Logica VTS, contrary to reports that have appeared clsewhars, has made quite a coup in attracting : William Newman, an Englishman who for some years has

DATA SYSTEMS NEWS

Major advance in Vallance's data management on line

Perkin-Elmersteps into the centre of the commercial data processing aren with the introduction of a new COBOt-based transaction processing system for all Perkin-Elmer 32-bit Superminis, including the recently announced

printers

line printers to meet the needs of medium throughput requirements. The tP300 and tP600, with nominal speeds of 300 and 600 lines per minute, are highly reliable, lower cost replacements for the comparable drum printers.

SOLID CHARACTERS

these new impact printers have usted horizontal character fonts, ulitizing a continuous steel loop character hand. Printing takes place when the contents of the 1.32 havacter bufter containing the data to be printed matries the character enting into position on the rotating Croups of characters are printed similaneously on the same the entire line is printed at once. Since the tent proves in a horizontal ilnection, the possibility of vertical

MICROPROCESSOR LOGIC

The tP300 and LPG00 use mirror rancessor logic to control the elecoreal and mechanical functions as self as providing internal diagnostic lesting to detect and indicate to the operator punter misoperations and malionictions. Mechanically there are only seven major assemblies in the entire printer, which will ensure high product reliability and reduce

new Reliance transaction processing

system is a product of the com

pany's Commercial Soltware Deve-

This Group, under als Director, Dr.

Marin Waters, is responsible for

A complete spilware system for

bansaction screen forms and apply

The new product, named Rehance, is an integrated software package consisting of COBOL, data management and transaction pro cessing software Reliance supports cur to 12B transaction processing users and provides integrity, secur-

SYSTEM RELIABILITY

According to Marketing Manager Gordon Ambidge, "Reliance is ideal for applications with a large volume ol transactions, a variety of complete applications and when system reliability is crucial. Typical Reliance applications are found in the distribution, manufacturing and service

"Under development for more than two years, Reliance brings to the business market easy and etlicient program development, rapid terminal response, data integrity and long-term growth," Ambidge

Reliance is priced at £8630 and is

DATA INTEGRITY

Reliance assures tlata integrity through unique antomatic record locking, on-line transaction rollback and system-wide recovery beatures line we quickly that it appears that Amdication programmers are freed from these difficult problems and can concentrate on the application solution. Test time is significantly produces wavy lines is virtually vide batch simulation of antiripated transactions With Reliance, carb transaction requires only those re-sources unique to it, while trainful and data management condition hts of the software are shared by all users at the same time. The result is excellent system resource utilization and tast response.

REPORT GENERATOR

Perkin-Elmer has also introduced RPG II, an easy' to use batchpriented report generating lacility

Computer aids productivity

The economics of data processing carr fre spectacular with certain Industrial automation applications. This is especially time of the activities al Davy-tnewy Ltd., whose Systems Engineering Division design special control systems for the process and metal inclustries, particularly lir connection with the

Reliance software system include:

manager (DMS/32)

Transaction oriented data base

Support of up to 128 Model CRT

Unlimited number of transaction.

Interactive program-

Interactive program
Independent scient form design
Automatic field validation of
screen forms
User programming in GOBOL
Automatic and transparent man-

Hierarchical transaction pass-

Broadcast and ppini-le-point

word system for security

RPG | report writer

Davy-Luewy chose Perkin-Ulmer two main leasons according to Reliance developed by UK team Alan Foss, Engineering Manager list, their minicomputers have a

substantial price performance advantage over the competition. Secondly, since programs imist be easy to maintain and very efficient. availability, smooth and simple Perkin-Elmer's Assembler was found operation and complete integrity of the data base regardless of any these unterta. **SMOOTHER PRODUCTION** Significant leatures of the

INCREASED THROUGHPUT

shape control system, marketed by

Luctey-Robinson at Bounnemouth

uses a Perkin-Hiner minicompute

to achieve dramatic productivity

improvements in the production of abinomians strip, with throughput

increased in some cases by as much

as 25%. Vidiplan controlled rolling

uills are in operation in America.

Austria, Belgning, the Netherlands

The heart of the Vidiplan system is a device which continuously monitors sheet distortion during rolling Signals are fed back to the minicomputer which automatically adjusts the rolling ptolile of the mil correct any developing distortion. One of the unexpected advantages of this process has been a substantial speed increase in rolling. Compared with human control of

mills, the computer provides mor codsistent operation and therefore oother production

With continuing improvements in performance and reduction in costs. Perkin-Elmer minicomputers wil play a major part in the growing idustrial automation market in th

er, Vallance and Davison, are deve-distribution to the branches to loping a computerised accounting, eventual sale, warehousing and meichandising. As well as detailed tracking of system hased on a Perkin-Elmer stock, information is distributed

Vallance's is a Tamiliai sight in shopping centres in Yorkshire and the North Midlands Dealing in on-line order entry system. This electrical goods to: the home, they makes for easier production of iun a chain of 24 shops and eight merchandising analyses and service centres, together with a demand projection as an aid to thisving electrical contracting bus- warehouse space planning mess spread throughout Yorkshire, Humberspie, Teoside, Lancashire and Atersevside

sive and are likely to take up to live years for full implementation following an evaluation by DP Manager, Alike Nutter, it was decided that the greatest immediate ments in strick control

FIRST STAGE

This, therefore, is the first stage of what will be a fully integrated system running on the Perkin-Lliner 32 covering stock, TV rental and 10° accounting, ledgers, payroll vehicle costing and electrical many renance contract tiles. Limited and other information from the The costing Schiplied premises of contracting side of the business will sciency. Products The more base also be integrated

POINT-OF-SALE

installed in the central warehouse, its under way linked duertly to the computer. Davy-Loewy's Vidiplan automatic

through an integrated system to the stock files, purchase and general

Computerisation plans are exten- Netherlands subsidiary launched

A new stage in the recent rapid expansion throughout Europe of the Computer Systems Division of Perkin-Elmer, is marked by the opening of a new Netherlands sub

The creation of Perkin-Hiner Data Systems BV is the outcome of a $42\,$ mently market evaluation, during to section curvialled

Japan espanded to accommendate the Computer Systems Division subsofteny A new Metherlands Sales Mana-

ger, Rob Hoogstraten, has been terminals at the 24 retail branches, appointed and recruitment of sales Parkin-Unior video ferminals are support and engineering nersonal

Address of the new operation is Using a system of stock many Perkin Limb Data Systems BV, lurs readable by CCR light-pens. Gelomy 70, Schipbed 5005 F, goods will be tracked from initial Ffolland Telephone 20-450791.

Industrial Automation Group of the Department of Computing & Control

Imperial College

whose computing operations are a model for others chose a

Perkin-Elmer Supermini

to enhance their large-scale simulation facilities.

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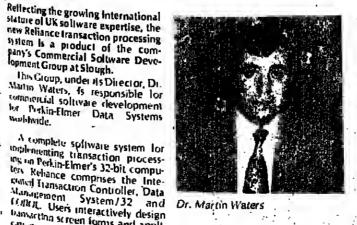
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By using us most cliente find they are able to cut their computer bureau coets, and of course your work will be carried out with complete confidentiality.



stigious research centre ot Palo Aito, California. At PARC Newmon was involved with the Alto office computer and the system based on it called Officatalk. At the same time Logica has lost Marco Capp, who is going to

keting managar with hexos has gained sho former expairints, Bill Hard who worked with Citibes Los Angeles



Dr. Martin Waters

And the programmed using ANSI matic transaction rollback, auto-matic record locking and uniocking and a highly ellicient rollback rollback

INTRODUCTION TO PASCAL

Structure—and how to use it

Part 4

SO far in this series, we have looked at the origins of Pascal, its novel data structuring facilities and the "nitty-grittys" of its gramming. It is now time to see how to write a Pascal program.

Define the problem

No matter what the language, the first task is to define and understand the problem. Complex problems benefit from special specification tools, but our Flexitime system is simple enough to

Employees in the firm of Blaze Inclean arrive and deport as they please while the gate is open, provided they take one and only one lunch break of at least half an hour. As yet there is no "Core Time" during which all employees must be in the building because the enlightened managers of Bluze consider this an unnecessary restriction. However the clock-on and elock-off times of all employees are monitored and periodically analysed. If it turns nut that working patterns are becoming too diverse. Core Time might be instated. In the future, the working record of each employee might be filed, but at present the data is collected for statistical purposes only. Blaze wishes this to be done on a

Attempting a solution

At the simplest level we need a program to read in clocking times, diseard any which have errors or inconsistencies, and add the rest to a Statistics file. This system is shown in Figure 1.

We decide that times will be read into the computer every week, so we can envisage a stage when a Weekly file will be created as well. This would be sorted and used to update the proposed Work Records file. Finally, an Analyser program will be written by Blaze's statistics section to provide the board with some idea of the working patterns of its employees.

The next lew parts of the series will be devoted to developing the Time Cheeker program, introducing most of the features of Pascal in the purcess.

The structure of a program

A Pascal program can have several sections as shown in Figure 2. The program heading is usually no more than a line long and includes the names of any files used by the program. Typically, those are the standard files input and output which are affached to the card reader for equivalent) and the line printer, respectively. Time Checker has one other file at the moment so the

PROGRAM (incchecker (input, output, statistics); The next four sections are concerned with declarations, setting

market place continued

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By Dr Judy Bishop

How to write a Palen program - that is the theme of the fourth in Di Judy Bishop's 10-page aoriea, introduction lo

Dr Bishop, e lecture b computer science a Witwetersrand Univer eity, South Africa, fire become ecquainted with Poacal when she was studying for her PhD # Southampton University

Thus, to implement the new lunchtime policy would require the altering of one line only ic

CONST lunchtime = 25;

A useful definition in any program, and one that will be used; the Time Checker is

CONST space = ' ';

Variables and types

Types were covered fairly fully in Part 2. The concept di variable containing the information that a program manipules is generally well-understood. Therefore this is a good opportuent to clarify the distinction hetween variables and types by intedueing syntax diagrams.

Syntax diagrams are a pictorial equivalent of Backus Renotation for specifying grammars. Figure 3 shows one forth variable declaration section of a program. The diagraminterpreted from left to right as follows: The word VAL. followed by an identifier (that is, a word or name). This calfollowed by a colun, a type and a semiculon, for example:

VAR week : 1...52; Alternatively, tracing the upper loop a lew times, we canso

a list of names before giving the type, for example VAR Irraletter, initial, cli, terminator: char;

After such a list the lower loop can be followed by the declar of another variable (or group of variables). Note, however, this loop joins the main line after the VAR, implying that? cannut be repeated.

What is "type" in this diagram" It is the name of as: diagram listing all the possibilities for types. These in subranges, records and sicon, as well as the name of a type the above declaration for week could also have been done.

TYPI weeksmayear of 1., \$2; VAR week : weeksinsvest:

The advantages of defining type names are the same as it defining constant names readability, documentation and con-

At last — Statements!

The statements form that part which is generally regards the "program". The fact that nearly fone parts of this sense. been completed before they are mentioned reflects the med emphasis on data structuring as an integral part of the design any system. While one cannot go at In as to agree with saying, "Lank after the data and the program will look a itself." the formulation of an algorithm can only be madeafter effort has been expended on data structuring by nor. reader is probably beginning to realise that this effort is it much made certain of energy, given a clear and powellds further such as those provided by Pascul.

MEXT MEEK:

Part 5: Top down to the main program

very by removed from the old style punch room lies

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NCC seminar.



COMPUTER WEEKLY milemention

THURSDAY, JULY 19, 1979



Telex 923 914 |Rabots Gl. MODULAR TECHNOLOGY

INTERNATIONAL BRIEFING

ICL wins £1m oil order

ICL has won a £i million order lo supply two ICL 2904 computers to the Nigerlan National Petroleum Corp. The tender for the computers was issued by the Japanese Chiyoda Company, the prime contractor for Nigerla's new Kadıına refinery where one of the 2004s will be installed. Chlyoda considered two Japanese computer suppliers

before choosing iCL.
ICL sees the oil industry as one of its most promising markets worldwide ond slaned an agreement a few weeks ago with tha British National Oil Corp jointly to develop systems for bigger 2900 series machines (CW. June 21).

Into PABX market

fHE long-delayed entry of IBM into the US computercontrolled internal telephone exchange market is now forecast for the early 1980s, possibly by 1981 by which time the venerable European-built 3750 will be due for replacement. According to market researchers international Resource Development, the PABX market is booming in the US, with enstoners prepared to pay \$1,200 a line.

Japanese orders

DUTSIANDING success in Japan for the large-scale Univac 1100 line continues with three new orders totalling \$7.3 million. The Daihatsu Motor Compuny oi Osaka wants an 1100/80; household equipment manufac-turer and distributor Koizumi Sangyo Co, also of Osnka, wants an 1100/11, and Kao Soup of Tokyo is putting in nn 1100/21.

Chess moves

A HONEYWELL Level 66/611 mainframe at Cli-HB's Belfort factory has been kept busy over the past fortnight by the third World Chess Championship for under-17s. Forty-four players from 43 countries have been taking part in the intellectual match in Belfort and the computar has been working out the pairings for each round of the manually, takes six hours.

Swiss Bank boost

A DRAMATIC increase in computing power is planned by the Societé de Banque Sulsse, the Swiss Bank Corporation, which is replacing its existing Burroughs B3700 systems with six B4840s and one B3830. Tha systems act as front end to an ISM lems aet as front end to an IBM mainframe and support a net-work of 1,500 Burrougha ter-

Arab centre

THE Medical Centre, a private hospital in Jeddah, Saudi Arabia, has installed a Digico M16E patient record, accounts and billing system. Terminals have been installed on each floor for reception and in the laboratory.

Siemens to manufacture in South Africa THE German company Slemens is to become the first multinational organisation to manufacture computer products in South and the products there is ICL, which is negotiating a year. Annual demand for this type of terminal system in South Africa is estimated at a record 2,000 units worth £12 million. Five

The company is to make its 6.610 intelligent terminal system at either its factory in June 7). Pretoriu or its subsidiary in Johannesburg, South African Technical Products.

with the Smuth African government on the possibility of building small computers (CW,

Initial orders for the Slemens 6.610 already exceed 100 and Slemens plans to produce 200 memory and support seven screens.

South African companies also make intel-

Itel offers most powerful commercial mainframe

purpose mninframe computer in the world is now on offer from

Cniled the AS/8-7034, it is equivalent to a single processor Hitachi M-200H and Hitachi benchmorks indicate that it has a processing speed of 8 mips, million instructions per second. which compares with 4.7 mips for an IBM 3033, and is n little more powerful than an Attached

chips which Itel says are five limes as dense, and ot four picoseconds switch a little faster T machine is a true multiprocessor than those used by Amdnhl on

its largest machines. Contrary to popular belief, if appears that Itel was Intimately involved with Hitachi in the development of the AS/8 and the M-200H, and has had engineers working at Hitachi's Kanagawa plant in the footbills of Mount Fujl for three-and-a-half years.

single-processor AS/8 hut the integrated array processor. underlying architecture of the like the Univac 1100, Honeywell Level 66 and Burroughs B68-

7800 lines, and unlike IBM's 370 and 303X machines. It can come with up to four CPUs, and Itel expects that similar architecture will be adopted by IBM in the Forthcoming top-end H-series. A further feeture of the M-200H,

FOLLOWERS of the opic voyage of the replica Villing longship Orlin's Ravon, soon hore with its intrepli

16-mm crow, will be rallaved to lacen that alto

soverel advantures, including a nenr-cutustraphic event oil Slive, she errived sefely at Pesi on the

event of I Silve, and errived setaly at less on the eppointed dey, July 4.

Reason for the vayoge was the millionnium all Tynwald, the isle of Man Porliament, which claims to be the oldest cantinuously sitting assembly in the warld (CW, June 7). The Queen, who is size Lard all Men, visited the Island on July 5 for the nanual reading into the law of the Acts pessed by Tynwald divisit the presedure 12 manths.

during the preceding 12 manths.

The warst mishap to strike the Odin's Raven an its

iangbast ta cepsize, and amang the items last was the blus-and-white Univac shield, one af sevaral

omblezaned with the nemes of spansors (CW, June

21). A new shield was hurrladly prepared for the

The Island government, which uses a Univer

90/30 camputer, will now take over the Odin's Roven. It is to be haused in a sesside museum fram which it witt malic occosional vayages far the benefit al Manx schoalchildren.

1,500 mile jaumey Iram Trondheim occurred durin Illming sessian off Skye. A freek wavo coused t

Particularly attractive to users who have not already installed plumbing is that, like all the Amdohi machines, and un-

like the 3033, the AS/8 is air-The complexity of large systems and the shortage of highly-skilled engineers makes

remote diagnostics a must, and Hel is planning to open a centre in Palo Alto, California, initially to serve the US customer base, to which all AS/8s will be connected. First shipments are scheduled for 12 months' time. and helexpects that IBM will be then have announced the Hseries, It therefore has not yet priced the system.

The has also announced a significant enhancement for the AS/0-7032 Affactied Processor system ICW, March 15) and renamed it the AS/7-7033 dual processor complex. The key new leature is that if the master procussur gues down, users can manually switch the injustoffpul channels over on to the second processor, perform an initial program load and continue working while the failed

Turn to pege 24

TWO years ago, it was election year in France, and the French Premier, Raymond Barre, performed the inaugoration ceremony at the big Sicoli comjoiler and office equipment exhibition in Paris. This year Posident Greard d'Estaing tpreparing his own re-election campaign, and is scheduled to make the inaugural speech at Sirob. The ceremony takes place at 3pm on Thursday, September 20. The show opens on the pre-

vious day. A unifor innovation at Sicob - and one which hooks suspiciously like a riposte to the Sernious for mahelplally scheduling the hieumial Systems show against Sicob this year is a section devoted to the OEM

Sicob runs from September 19 to 28; Systems, in Manich, will be from September 17 to 21.

Norsk to take over Tandberg

THE futures of two troubled Scandinavian componies, Tandberg of Norway, and Regnecentralen of Denmark, have been secured.

Norak Data, manufacturer of high performance minicomputers, is paying £1.2 million for most of the shares in what remains of Tandberg. The rast of the shares are being taken by tha Norwegian government, and the agreement calls for Norsk Data to buy these after a minimum of

Tha move marks a diversification for Norsk Data, since Slemans has already acquired the computer terminals and peripherala manufacturing division, while the radio and television operations have been closed down and the UK TV factory has been bought by Mitsubishi.

hospital in Jeddah, Saudi Arabia, has installed a Digico M16E mines to handle a centralised been installed on each floor for reservations and accounts, in reception and in tha laboratory. currently employs 410 people.

compared with 400 at Norsk The large service bureau

arrival in Peel.

Tandberg will be run as a sister company to Norsk Data formed into a separate company RC Data Centre, and plans are being laid for the manufacturing rather than merged with it. De-spite the minority government holding in Tandberg, Norsk Data is determined to retain complete commercial independence and avoid any Norwegian government involvement in its computer business.

Maanwhile in Danmark, a major financial restructuring is likaly to taka place at Regnecentralen, the national manufacturer of amail mainframes and distributed processing systems.

baing laid for the manufacturing authorised the Danish PTT three other State-owned telephone companies and the Datacentralen government ser-vice bureau to subscribe for ahare capital in a reformed manufacturing company likaly to be called RC Computer. The government has stipulated that one-third of the capital must remain in private hands, and set a limit of about £3.2 million or the total which can be subscribed by State-owned bodles.

operation in Denmark has been

formed into a separate company,

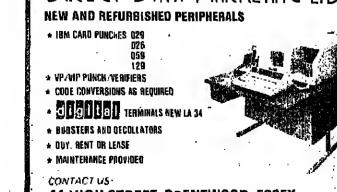
IBM French profits down

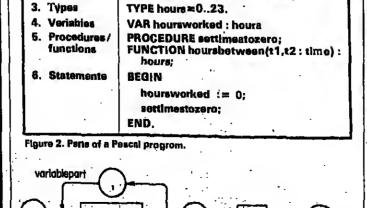
iBM aubsidiaries in France and Germany recorded figures for 1978 which were decidadly out of line with what one expects from the computer giant. A few weeks ago IBM Deutschland reported profits up 8% at DM fall in profits to growing costs in 1,097 million on turnover down france, which put the company just over 1% at DM 6,318 million there at a disadvantage to US how IBM France lias reported a based companies.

North Sea operators Unionoil who always explore the best channels discovered a Perkin-Elmer transaction processing system as the right answer to their accounting and data processing needs. PERKIN-ELMER

Computer Systems Division 227 Bath Road Slough Berks Tel: Slough 34511

The new bigname in computers





--- To on extended system

////// The extended system

up the program's dictionary. Like any other dictionary, this one

includes information about "parts of speech" or, in Pascal's

terminology, whether it word is a constant, a type, a variable or a

procedure. These declarations must come in this order and the

keywards CONST, TYPF, and VAR appear only once, to introduce all the words of that kind. PROCEDURE and FUNCTION precede

After all the declarations, come the statements which start with BEGIN and close with END. And now for the interesting

part. Ench procedure has exactly the same structure as a

program. It has a heading (which starts with the word PROC-EDURE rather than PROGRAM); it has declarations, including

other procedures and functions; and It has a BEGIN-END pair

enclosing its own statements. The implications of this will

Every programmer must have come across a program (cer-

tainly not his own!) which requires a major update because some

constant which occurred throughout the program had changed.

For example, suppose Blaze Inc. decided to reduce the comput

sory lunchtime to 25 minutes, if the original 30 appeared as such

in the program, each occurrence would have to be changed.

Moreover, an Editor command such as "change all 30s to 25s"

would cause chaos by changing all other 30s (days in the month

In languages such as Fortran one is wary of assigning a name

IF(MIN2-MIN) .LE. LUNCH)GOTO RUSHD

IF(MIN2-MIN) LE. 30)GOTO RUSHD.

A Pascal constant definition assigns a name to a constant for

EXAMPLE

PROGRAM Itsname(Itsfiles);

CONST lunchtime = 30:(" mins ")

the purposes of documentation, readability and case of change, but to the compiler, it is still a number of character or whatever.

to a constant because this in fact sets up a variable and

would, un most compilers, not be as efficient as

become evident as our Flexitime system develops.

Figuro 1. System chart for Flexitims.

each subprogram thus delined.

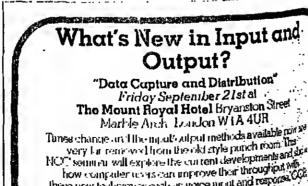
The inconstant constant

of June, for instance) as well.

SECTION

. Heading

2. Constants



NOT some will explore the current development and the how comparer uses can unprove their throughput will these new to disappeas out has voice uput and response Con-Delegates will receive a copy of the NCC Talking Pears

Capturing Data:

For higher Seminar details contact NOC Tel: CG1-228 G33 * (Val Cording) or til-353 4875 (Trice Val)

Join Seth (315) The National Computing Confer of Oxford Board Manchester MT 760, 25 3 3 3

INDIAN SCENE Delhi software firm

goes into Europe 10 will international business Malaysia, where it plans to open programme under which Com-

from an Indian base have persuaded one of the biggest com- Indonesia. Singapore and puter companies. Computronics Finland; in general it would like of Delhi and Bombay, to open to sell and support n Western offices in Brussels and Frank

collaboration with European manufacturing licences are exsoftware houses, but we will also tremely valuable commodities be seeking contracts from and Computronics has a letter of minufacturers and end-users," says Computronics president Vivek Singhal, who runs the suitable product. Delhi and of the company while his brother, managing director Piyush runs the Bootboy opera-

Computronics is interested in hoth system and application software, and will be giving progranimers tours of duty in the European offices once some contracts have been louded.

Computationics, which now hos a turnover of about £8 million, grew big hy becoming the Indian agent for Electronorgtechnika, the Russian export agency, just at the time that the Indian government decided to expand computer business with the Soviet Uniun.

Russian computers installed in India have been paid for with system and application software, and Computionies has done much of the work itself, although it has farmed out a substantial quantity to other Indian organisations which have installed Russian machines (CW, July 6, 1978).

The Russian connection has been extremely voluable to medium-scale computers in the dia. It has four machines of its own, an ES-1033 in Bombay, a 1022 in Delhi, a 1020 in Bhilaí and a 1910 in Allah ibad.

Computernics intends to contime to act as Electronorgiechinka's agent, and has been commissioned to our the Russian organisation's office in traqwhich will maintain Rind

machines installed there. "We would like in provide the nance Corp. CMC, it is in effect same kind of support service for the result of nationalisation of a Western manufacturer in the IBM's maintenance operations.

its own service bureau, and on

minicomputer. In a planned economy such as "We would like to work in Indin's documents like intent for computer equipment manufacture. It is now seeking a

"We are interested In manufacturing both in the Seepz free trade zone and outside it. In the latter case we would be looking for a product which would enable 70% of the output to be exported."

Discussions are at an advanced singe with Mael (form-

ECIL micro

conaldsrable growth in the variety of Indienment and menufecture. Our picture ahows en Institute of Technology in New Dethi, where it ECIL Micro-78 microcomputer under test at the will be used for date logging.

putronics would assemble 300 Maei 2000 or 1000 systems in Seepz for export to Jugoslavia.

There are also plans to build 300 Videoplex terminals in Seepz for the Hungarian computer



THE edvent of the microprocessor has led to public sector company's plant neor Hyderabed. Based on the Intel 8080A microprocessor, the designed mini and microcomputers in develop- mechine shown here is deetined for the Indian

Reports by Tim Palmer Bombay company link with Wang____

powerful new Wang 2200YS

Datamotica has agreement

with Wang to support their

machines in various African

countries, notably Nigeria, in

Middle and Far Eastern coup-

tries. It is writing several system

softwore modules for the Vi

Including a Fortran IV compiler

which It hopes will be adopted

grainmers, Datamatics is keen to

expand in that major indian

standby, software conversion,

and to this end has signed

agreements with conversion

specialist Rand Information

Systems involving conversion

work in the UK, the US, France,

tsrael and Australia, It now

wants to start a joint venture

AL'I'HOUGH India lias a sumb

cessing personnel. Two of the

blggest, Tuta Consultancy Se-

vices and Computronics, are

days of training last year," 155

Finjir Kohili, managing director

In tween 10 and 15% of our tota

"But it is still not enough, and

Vivek Singhol, president of

hidget on training.

with Rand based in India.

With 75 analysta and pro-

hy Wang.

Mauretania, and In one or two

machines about now.

Wang and agreements with Indian company is also due to Rand Information Systems are take delivery of two of the two of the mnjor coups for in-dia's most ambitious computer entrepreneur Lulit Kanodia, and his company, Datamatics of

Even more ambitious are plans, not yet complete, to estuolish u large-scale offahore data preporation service for US corporations, siting the centre in nbay and making use of the ian Oceon sotellite to link with the US Telenet packetswitched service and then to customers all over North

By akliful use of atatistics, Kanodia can make the Indian economy sound like a super-California, and In his view, the potential of the national comouter industry puts Silicon Valey in permanent shade.

So it is with relish that he reels off the impressive statistics relating to Wang, notably that it is currently the fifth fastest growing company of uny size in The rigiditles of a planned

economy throw up some strunge anomalies, and one of these is of particular benefit to Datamntics, "We have aiready sold three Wang word processors; they are fairly easy to import because

of university-educated man-

plans to diversify into severnl training for users on lunguages. database systems and communications, ond is planning enhoncements and modifications to operating systems, and plens to open a bureau in Bom-.

bay shortly.
This will be based on the

to India lost year highlighted IBM 370/155 nt the Indian In-

doing suncthing about it.
"We provided 40,000 magof TCS, "We take in 60 to 70 new recruits every year, and spend

i am planning to establish a training school separate from the company near Bombay." Computeroiles is thinking along

similar lines "We are planning to establish a Computanics in stitute for Computer Scientists UMC is keen to collaborate in New Dellil. It will be a private. men-profitmaking establish-

SEMS adds two minis to Solar line EUROPE's leading minimaker, the scientific and technical mar-

with 32 or 64K-words of main

The Solar line contributes 42%

of SEMS' turnover, which total-

led 525 million francs, about £58

The balance is contributed by

the Mitra line, which will be

extended later this year with a

powerful new model built using

SEMS is still in process of es-

tablishing a UK subsidiary. It is

already well-established on the

West German markel, where the

torical reasons, and has also

The UK subsidiory is to he

heoded by Douglas Mockenzie

formed o Belglan subsidiary.

bit-slice microprocessors.

real-time Basic and APL.

million, In 1978.

the continuation of its two munications applications. parallel mainstream computer lines by following the launch of the Mitra 225 with two new models in the Solar 16 linc, which bracket the thrae current

At the top end, the new Solar memory, which can be all RAM or a combination of RAM and offer one Megaword of main programms ble read-only memand is claimed to ory. Languages now available approach the power of the include real-time Fortran FL/16, Digital Equipment PDP-11/70.

Fast memory, with a 375
nanosecond cycle tima is avail04 is 24,000 francs, and for a able in 32K-word modules, and 16/75 with 64K-words, console standard memory with a 625 and one Megaword memory nanosecond cycle comes in 64 or management system is 174,000 128K-word modules. It is built francs. around twin buses which can support up to four input-output processors, and the virtual storage operating system gives the user up to eight virtual par-titlons, each with a maximum capacity of four Megawords. There is also single and doubleprecision floating point arith-

Up to four 50 Megabyte disc drives can be attached, and real time, transaction processing and multi-task multiprogramming Solar line predominates for hisoperating systems are supported. Fortran performance has been doubled over that of the 16/65, and APL performance by 30%, The Polybus offered with Solor machinea allows multiprocessor configurations to be put together with no theoretical imit on the number.

Bromley, formarly technical director of SEMS Computer Recruiting has been handled from the Thomson-CSF offices SEMS is aiming the 16/75 ut In Basingstoke, but SEMS Com-

Computers give a boost

About 20% of the large compulers went for export, almost all of them for marketing by Itel as the AS/6. Hitachl hopes to Increase the proportion exported, currently 7%, to 20% over

Club takes 38% of market

tiers are currently the star performers at Hltachi, making n innior contribution to the 25% growth in profits to £220 million nn turnover up 9% ni about £5,000 millim.

Overall, the compuny's business is still strongly Japan-oriented with only 19% of sales being made nycrseas, down from 20% lust year.

SEMS of France, has confirmed kets, process control and comlocation. Staff have been The 16/04 la a replacement for recrulted and are currently the 16/05, and uses the same undergoing training prior to CPU. It is extremely compact, formal inauguration of the comcoming on two half-width pany, which is likely to be in

circuit boards, and is offered August or September.

East-West collaboration

ONE of the most mutually Europe's largest manufac-

beneficial Eost-West collubo- turers of TV sets, and to keep

rations in the computer in- the cost of the Videnplex as

dustry is that between SEMS low os possible, it decided to

of France and Videuton of use TV monitors for the dis-

Hungary, Videoton manufac- plays, Outside the Chmecon

tures versions of the SEMS countries, Videoplex is mar-

Mitra mini line in Hungary keted in Yngosinvia, and since

under licence, and hus collabo the system does not conflict

rated with the French com- with anything offered by

pany on software develop. SEMS, may alsu be offered in

ments, Our picture shows one some Western Europenn

smallest Mitra mini - a low- relationship, the Hungarian

mini is Videoton's VT60 the VT600, which is its version

Vidential is one of Eastern nounced the muchine.

THE benefits of the concerted que, Logabox and Benson,

french effort to establish n The total French sinnll com-

strong national presence in the puters and peripherals market is

small systems and peripherals valued at 4,000 million francs in

market is underlined by the Int. 1078, of which Club members

est figures published by the secured 38%. However their

French Chib de la Peri- combined turnover was consid-

hus 23 members, among them froncs, because one-third of

punles like SEMS, Intertechni- francs, was done outside France.

oformutique which currently crably greater, 2,050 million

Underlining the class

company was able to exhibit

of the Mitra 225, at the

Hanover Fair this year, a few

days before the French un-

their husiness, 530 million

of the original Videoton pro-countries, ducts developed around the Underli

cost key-to-disc system. The

single-board processor, and if

internationally known com-

I is no coincidence.

he display looks like a TV set

ling a wide varioty of other processing tasks has been introduced by CMC-France. It was designed end is being built in Fronce for the European market.

The processor is a 256K-byte Digital Equipment PDP-11/34, and CMC is using Control Data fised 80

The control of the control Data fised 80

CMC-France records more than helf the total Megsbyte drives, up to four of which can be tumover of CMC-Europe, 153 million france out of o attached.

systems house TIT, the communications processor fas just been bought by Rediffusion of the UK (see can support simultaneous transmission on up to oight

French launch data entry system esynchronous protocol.

Languages on the 7600 ore Kobol for reol-time

Up to 32 terminols con bs strached to the CMC
7600, and an innovative feature is a multi-protocol, multi-line communications processor.

Although there is some product eschenge between CMC-UK and CMC-Europe, the two compenies are not finencially related, CMC-UK is owned by US Sseed on two Zilog Z80 microprocessors, and minimaker Microdeta, which is currently involved in developed by CMC in collaboration with the French takeover talks with an unnamed bidder. CMC-Europe

INTERNATIONAL NEWS IN BRIEF

Siemens opens a second micro centre in Germany

THE German giant Slemens has shown the importance it attaches to the need for training in the use of microprocessors by opening a second microcomputer training centre in Germany.

Slied in Düsseldorf, it comple ments the existing centre, opened in Munich in 1976, which aircady has given courses to

Siemens also has training centres in Vienna, Milan, Zürlch, Madrid, Brussels, Paris and Scandinavia, and claims to be doing more to train cus. tomers in microelectronic techniques than any other organisa-

Traffic system

BANGKOK traffic congestion is now being magnificed and controlled by a micro-based High-wayman system from GEC Traffic Automotion. Valued at about £730,000 the system handles 48 road intersections

£1m Swiss order

THE Union Bank of Switzerland has given Nixdurf one of its biggest orders for the 8864 line of lunking terminals. The order is for more than 2,000 systems for installation in the bank's subsidiaries, and is worth over El million. It was won in competethan with 12 other companies. The Union Bank of Switzerland is nise installing an enormous new complement of maintraces from Univac: three 1100/828 and an 1100/81, to replace its aged Univac 494s.

NatSemi in Israel

A NEW centre for the design of ndvonced microprocessors has been opened in Israel by Natlonnl Semiconductor. The design of its first device, sald recently by international vice president Bob Heikes to be the new 16-bit 1600, is expected to be complete

First French

THE CICS development aid. Intertest, has found its first French user, Texunion, which runs a 370/115 in Roubaix. Sold to the company by Sligos-CPP, Intertest now has some 200 users worldwide and is marketed in this country by Circle Computer Consultants (Software File, July

Personal privacy

A HARRIS poll in the US has indicated that an increasing number of Americans are wor ried about invasions of personal privacy. Of the 1,500 people interviewed, 52% felt that existing safeguards over the use of crunputers were inadequate.

A 545-page directory of programs used in conuncretat mining operations since 1970 has been issued by the US Bin eart of Mines, it is available from the UK service centre of the National Technical Information Service, price £19.40.

Papuan upgrade

THE national offine of Papua New Granen, Air Ninginl, is to replace its two ICL 2903s with a 2950, and is buying Telecomphting's online transaction provessing package TPS to run on the new machine. Applications to be developed on the new machine include crew munagement and supply records.

nuwer, the major computer Maintenance company plans to diversify companies believe that there still an urgent need for me training facilities for data; handling maintenance of all Hyderabad, it has ambitious stitute of Technology in Mudras

of the ashes of IBM India. One, IDM, has become the Itel and Prime agent in India, is running Computronics, making the the service bureaux left behind company the largest supplier of by IBM and, because of the calibre of its iBM-trained staff is respected and accorded a goud chance of surviving, and la making a success of its declured aim of Western collaboration

(CW, May 24). Although it maintains an air of supreme self-confidence, the nther company carved from the rump of the IBM India business is less highly regarded. Called Computer Mainte-

computers installed in India, and (some would say unrealistic) is presently contracted to provide maintenance at 800 instal-

In addition to most of the machines left behind by IBM the 370/155 at 1IT Madras, one or two 300s, scores of 1401s and a few 1130s, 1620s, 7044s and 1800s - it is now under contract to maintain four Digital Equipment machines, two Robotron ES-1040s, three Burroughs mnchines, three ICL machines and some Inforex equipment.

It also has agreements to provide maintenance on future machines installed by CII. Honeywell Bull, CDC, Itel, In-

terdata and GCSS. Now headquartered in

other flelds.

Already it is providing

Indian designed and built TDC-316 minicomputer, which CMC niso plans to use for software The EEC-hosted delegation of

European softwore companies shortage of main memory on the as a major limitation on the applications which could be run. As a result, the memory is to

be doubled to one Megobyty. But Instead of calling in IBM or a plug-compatible manufacturer to effect the upgrade, CMC has decided to do the job itself. It is ulso developing add-on memory for the Enstern European innehines installed in India.

Despite its age, the second generation IBM 1401 plays a vital part in the Indian comoniv. and CMC hos phins to prolong still further the active life of the machines.

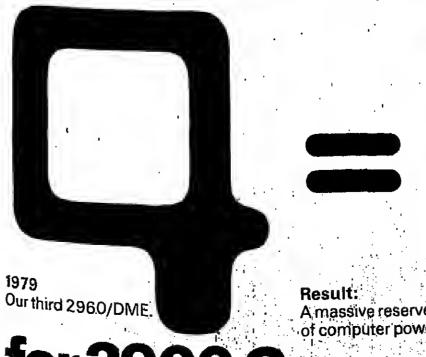
with European companies on developing systems, suftware and updications packages

to Hitachi profits growth ORDERS for large-scale com- lion for computer and camijuters at Hitachi totalled 292 in

1978-79, up from 208 in the previous year, and helped the company to a 19% growth in turnover in its communications and lectronics division to about £1,000 million. The division includes integrated circuits, and a wide variety of other telecoinmunications and electronic pro-

investment plans for the current year include about £50 mil-

ponent enpacity, the lion's shure going to increosed output nf semiconductors. This is a major export earner for Hitachi, with 24% of its output being sold out-side Japan, it already has a small plant in Dallas, Texas, and wants to site a plant in Europe.
Computers and semiconduc-







1977 Our first 2960 It all adds up to Britains No1 choice

general, and in particular for small basis in West Germany. However, the systems, is so vest that it can provide firm has now acquired a network of enough businees for e menufacturer distributors covering most of Western with the right product to grow big Europe end is looking for substentiel quickly, without even looking for sales seles from established computer

One firm that grew to nearly \$40 million in turnover before ectivaly Quantel's success to dete include user seeking Europeen representation is Qantel Corp of Heywerd, Celifornie, e company that cleims to outsell NCR now in the smell interactive businaea systems market in the US.

Qantel systems have been sold in Europe for about four years, but only in small terminal manufacturer into a valop over the next few years.

The US merket for computers in the Netherlands end on a very limited equipment suppliers like its UK distributor, General Computer Systems.

Fectors that have contributed to oriented softwere, low cost merketing through cerefully selected distributora end the leedership of the firm's president, Doug Beker, a Canedian who has trensformed the Celifornie company over the last five yeers from e

in European market

mejor contender in the commercial systems merket.

Beker knows more then most about this business, heving teken Menegament Assistence inc into the interective commercial systems merket in the early 1970s by setting up Basic/Four Corp before moving to Centel lete in 1973 with the mission of doing e similar job -- only better.

Here, Beker telks to Keith Jones of Computer Weekly ebout the past, present end future of Centel end mekes some interesting predictions about how herdwere end softwere will de-



oug Baker (right), president of Qantel Corp, talks to Keih Jee, computer Weekly, outside Contel's headquariers at Hayward Crisis

"THERE is one inviolate rule in half as much as they wanted for up to one Megabyte as standard.

Ountel — no hardware or soft twice as much as they ex. Asked about the processing Quntel - no hardware or soft twice as much as they ex-

Baker promised, "In two years Dong Baker expressed this Qantel will offer 16 Megabytes commitment as a computer marketing man whose experience goes back to the 1960s when the computer business was very much manufacturer Mcgabytes will eliminate conoriented. At that time he was selling accounting machines for

Corp which was later taken over "In the 1960s the customers of the computer firms that end machine in the Oantel fant redundancy of intelligence. This dominated the market then got lly, the 1480, already comes with dynamic redundancy will in-

Qantel poised to

repeat success

of main memory to its new and existing customers and they will be able to use up to 100 display terminals because the 16

Qautel's system design phllou Canadian firm called SCM suphy already weights in favour of large memory capacities and dedicated user partitions rather than program swapping. The top

electronics and degrade the performance of the system when capacity needed to utllise 16 something falls, but the machine Megabytes, Baker commented, "Our systems will have several will not go down. We know that processors by then and the 16we can achieve it and I am sure bit word length of our CPU is all that it is essential for our survival in the small systems busithat is needed in a commercial machine. Most of the work in-

volves file transfers. The com-

Looking at another customer-

orlented development just over

putation side is trivial."

vice calls to be optimised. "When Qantel was In the terminal business It needed 80 service sites in the US to maintain equipment at remote locations." Looking at software develop-

the horizon, Buker explained, "The next major step is to ments, Baker saw Quntel's eliminate downtime by the recently acquired business planredundancy of intelligence. This ning system, Qicpian, as ex-tremely importent for remaining

"At the moment small business computers normally just report history, but in two years from now," Baker asserted, nobody will buy a business computer without planning

Qieplan, along with most of the opplications software for Qantel systems, was developed outside the company, but Qantel Itself has worked on its two esdisc operating system, since million in 1978 to what Buker September 1973 when Buker conservatively estimated will be

joined the firm. "Al Qantel we nyolded what I sequential file access method while at Qantel we went for the tree structured method."

printers from Centronics and Teletype Corp, but Buker estimates that Qantel itself adds about \$0% to the final value of the hardware. ness, because it will enable ser-

controller, memory and PC boards, and its IC suppliers inelude Hitaehl and NEC of Japan for 4K and 16K RAM chips. The ubiquitous AMD 2900 bit-slice processor chip set is now used in all Qantel models apart from the smallest muchine, the desktop 210, which is configured around a Zilog Z80 8-hit interoproces-

> All manufacturing used to be based at Hayward initil about a year ago, when a plant was opened in Puerto Rica, a location selected, according to Baker explained. In Baker, because talented and industrious labour was readily avullable, and not because it was cheap, "Puerto Rico has the same minimum wage as the US." Baker pointed out."

The Puerto Rico operation is sential software products, the discussion sential software products, the to be further expanded to help meet n growth in sides from \$16. million in 1978 to what Baker a \$50 million turnover this year.

Qantel has been profitable line 1975, and the commence to the nm sure were mistakes made at since 1975, and the company's Quartel is already Basic/Four. For example, health is particularly important established in a number of a contest such Basic/Four adopted the Indexed to Dong Baker because he has a European markets such substantial holding in the com- Australia, where mere than pany - one of the reasons he nuclines have been insti-About 35 of Qantel's directly mployed workforce of 600 arc Other miner of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he muchines have been make the number of the reasons he much necessarily and the reasons have been make the number of the reasons he much necessarily and the reasons have been make the number of the reasons he much necessarily and the reasons have been maked the reasons have bee

employed workforce of 600 arc currently involved with soft ware development.

On the manufacturing side, the firm buys in all the peripheral units incorporated in the conganisation that finonced the summer that on the manufacturity of the conganisation that finonced the conganisation t

its systems, including disc drives launch of Intel, and the Bat: from CDC and the Texan com-pany, Western Dynex, and world. About 200 (her employees also hold sixt their firm.

The company provides up assistance for about half it distributors and also pet The compony builds its own quite a lot of money looking sultable international der.

Quntel look a sund Hunnver Fair earlier this specifically with the ic making such contacts, and company spent \$70,000 buoth at the Notionati putting Conference in Ner" for the same reason.

fied range of mainframes, but I found that, at least in Bulgarin, Alunt 50 Quatel system this title is never used. Dire to been installed in the & peculiarities in the Cyrillic lands over the last four is alphabet the series is sometimes and do in West German by ! spoken of as the EC range, to add to the confusion. The ES tel's Dutch based distrib: machines were designed after approached us, rather the the IBM 360/370 and will accept finding them, because a much IBM software without time we were still estable? ontselves in the US. Frank A disc operating system esam not happy about the? sentially like DOS is found on the smaller machines of the tierman operation at the: ment, but we hope to dos

range, ESi010 and ES1020, with thing about that." OS/ES having the facilities of Quntel's European cont SVS on the larger machines up now takes in most count including Sweden, where Qr

Bulgaria's share in mainframe production lies in the medium range including ESi020, 1022, 1033 and 103S. The first two machines are equivalent to IBM 360/40 and have been in production since the early 70s at he modern and substantisi plani, iSOT, altuated on the outskirts of Sofia.
The ES1033/5 is its latest

the members of the Comecon

economic grouping, computer production and aoftware deve-

ment is now regarded firmly

s a co-operative effort, sup-

anning and control.

orted by a high level of detailed

The political core for this co-

nittee for ES Production

operation is the Central Com-

chaired by Professor Ilarionov, a corresponding member of the USSR Academy of Sciences.

Each Comecon country has Its

member and meetings are held twice yearly, by turn, in each member state. This la planning

at its highest level which reaults

in decisions on what is made and

A galaxy of sub-committees,

meeting more frequently, supply

the detailed information and

control over hardware and soft-

ware developmenta, systems,

communications, external de-

vices and, at the sharp end, pro-

duction targets, material supply

and labour requirements for the

The ES1000 series is the major

current development. This Is

olso referred to as the Rjad uni-

individual factories.

contribution and has marked similarities to the 370 series. Inilial deliveries will be made within Bulgaria as replacements for its ageing ICL and other

Two organisations I visited, spin-off from the work of the the institute for Organisation, igles and Management of Ques is expected. One major Construction, which runs an problem is the state of public ICL System 4/50, and the telephone lines in Bulgaria, Academy of Social Science and which is down to 1.2K bytes for Social Management which has an ICL 1904A, expect ES1035 (or larger ES104S) replacements shortly. The Mechano-Electro-Technical Institute sleaf Control Sulgaria. I met saveral examples Technical Institute, also in Sofia, expects to replace its three ES1020s with ES1033s or ES1035s later thia year.

As with the mainframes, peripheral and component prodiscilon is also allocated among Comecon countries. Bulgaria's ISOT is responsible apecially for storage devices and produces of disc and magnetic tape transports for the entire ES range.

The specialization is carried throughto other magnetic states manufactured by Videoton in Hungary and all the line Printers, for the ES series, by Elwro at Wroclaw in Poland.

Most interesting for me were the software tasks for Bulgarla. replaced by an ES103S.

Sofia centre

of telecoms

development

Sofio is apparently the centre for

communications developments,

and this includes not only use of

the IS series but also the new SM

series of minicomputers that are

to replace the bottom end of the

and has been designed and

manufactured as a communica-

tions processor by Elorg In the USSR, it uses LSI and is said to

be comparable with Prime 300 or

the Mitre 125, Smaller versions,

the SM1, 2 and 3, are manufac-

tured in East Germany, again to

The Institute of Computing

Techniques in Sofla is the pre

mler institute for communica

tion software development. It is

a large concern and responsible

for much of the manufacturing

design for storage devices pro-

Under its director, Dr Zhlvko

Zhelezov, it has recently been

given the task of setting up an

experimental packet-switched

Russian design.

duced at ISOT.

The SM4 is the largest of these

ES range.

Applications software is dominated by finite element work, most of which is written by the centre's staff. Packages in use include Genesys IBM Isls and a Pert-like system. Compilers used are Fortran, Cobol

Much effort is apent on programs to solve particular problems in structural engineering, such as stresses in roads, bridges and dams, wind effects on buildings and earth tremor ana-

Information control and dissemination is seen as the key to

most of the technological and social developments regulred by the modern state. Sofia is the home of one of the

argest organisations of this kind in Eastern Europe. The National System for Scientific tains as part of its function the Central Institute for Scientific Information and Management (CISTI). CISTI assists in co-

erest to Bulgaria's neighbours in

ordination of computer work for Bulgarian scientlfic organisa: tions, supplies technical and scientific Information at all levels and, most important of all.

and retrieval. At present it runs an IBM 370/16S with rented IBM software. The database is com pounded from many sources. It includes Compendex from New York, Biosls from Philadelphia, lnapec from London, inls and Agric from Vienna, and ICST

runs an automatic system of

information processing, storage

IN 1976 Dr KEN BEAUCHAMP visited gerie, he has found it even more difficult to

Poland end described the emarging com- seperete developments there from the

puter industry in the Eestern Europeen general situation in Eestern Europe: com-

countries In a Computer Weekly erticle, puter production and planning in Bulgarle The Wind of Change Blows in Poland form part of the overall Comecon effort.

Now, thrae years later, during a second Dr Beeuchamp is director of computing

visit to enother Comecon country, Bul- services at Lencester University. and Viniti from Moscow. Negotlations are also cur

rently being carried out to link the source of Inis (ouclear data) and Agric (agricultural dota). both located in Vienna, with CISTI via the loternational Research Centre at Laxenburg near Vienna (IIASA) so that data exchange as well as updating can take place. This is long-term project and likely to Involve the Institute of Computing Techniques which holds the central role in network development.

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Management reporting system

QANTEL is fully aware that effective software is the vital ingredient in any formula for survival in the commercial systems market these days, and the company already offers a group of applications packages called Solutions and a report generation system called, predictably, Report Generator.

Qantel now believes that it is on to a winnar with Qicpian, a management reporting system developed in Australia by Quickplan Inc. o small Sydney software house that originally developed the system for Wang computers but which has now sold the exclusive worldwide

marketing righta to Qantel. Quickplan's managing director, Chris Murray, who now spends a great deal of his time with Qantel at Hayward, explained that Qicplan is a full scale database management systam with a hierarchical dstabase structure similar to Total, but that its main purpose was management reporting.

Qantel's UK distributor, GCS, experience charge about £3,000 for Qieplan and, at to Murrny, it is for easier, as well as far there to usa than similar packages available of a share sharing basia or on in-house maintrant. toma, like IBM's Plancode. Murray pointed out that Qicplan only it

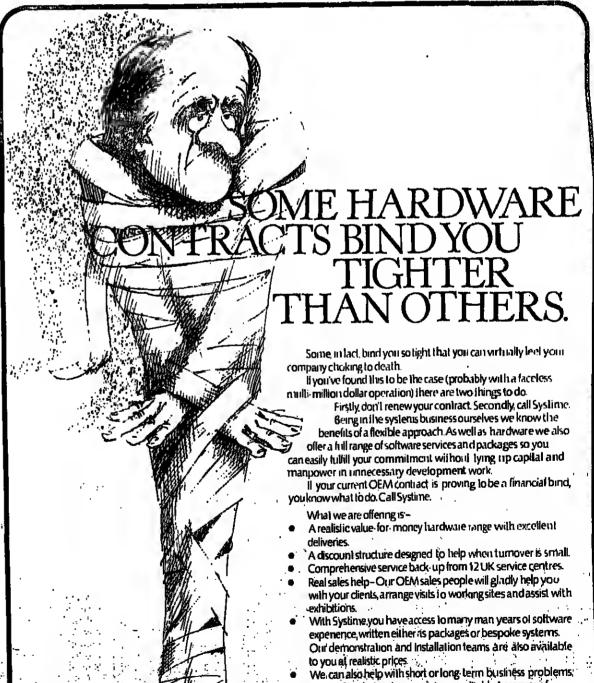
16K bytes per user on a Qantel 1460 math contpored with the 100K per user taken up Plancode on an IBM maintrame. Even mora important, parhaps is that

Even mora important, parhaps, 45 that plan models can be programmed using a right plan models can be programmed using a right plan models can be programmed using a simple forms technique, rathar than by some completed compiled language.

Qicpian has been used by some companied Austrolia for up to three years and custom there include merchant bankers Hill sand the companies that Australian and the companies that are companies to the companies that are companies that are companies to the companies to the companies that are companies to the companies that are companies to the companies that are companies to the companies that Walleome Australasia tha Australian sidisry of the UK insurance consultants and the largest consultant and the largest consultant firm in Australia, MacDonald Wagnet network using the ES1022 as host and SM4 ns node computers, it is a fairly modest affair with three nodes and four host computers together with an unspecified number of terminals problems they are meeting lie in the operating system soft ware for the ES ronge, which does not contain a mechanism for tronsfer of files in a network environment. Neither is the linking hardware very stiitable. At present the system in the host permits the link to look like n terminol operating ut maximum speed of 2,400 battds. Another body within Solia which is octively engaged in network design is the Miulstry of Posts and Telecommonica tions. A specialist working purty has been set up, whose task is to initiate a notional packetswitching network on the lines of the Post Office PSS. Talks have been carried out with the French organisation Transpore but not, apparently, with UK Post Office officinls. The initial purpose of the net-work will be to link the 27 districts of Bulgaria, corresponding to UK county councils, with ter minala and host computers. The posed is agnin an SM4, and aome Institute of Computing Techni-

during my vialt. One of the moat striking is the Institute for Organiaatlon. Economics and Management of Construction which is part of tha Miniatry of

Its computing centre provides the planning reacurce for management and design and la also sean as a modal for tha introduction of computer-based management systams into the through to other member states.
All the newer VDUa I saw were manufactured by the same was a same and same and same are same as a same are sam construction industry. The cenmunications processor, and is aupported by a Danish RC3600 adit systam. An ICL 550 is at ill running there but is due to ba



expenence, written either its packages or bespoke systems. Our demonstration and Installation teams are also available We can also help with short or long term business problems; Remember that we've grown to a prolitable turnover of £17m in 6 years, so we've come across and solved many of the problems you're likely to encounter Deal with Systime and you're dealing with flexible sensible. and sympathetic British businessmen - not a billion dollar. corporate body. For full details of Systime's sympathetic and flexible OEM sales and support services please contact John Armold.

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took by sen in the 1920s.

Government should consider splitting responsibility for telecoms even further'

The postal authorities have QFFICIAL and business mail thus been urgently analysing accounts for around threequarters of postal traffic in the causes of these lengthening North America and Europe, It is: ilelivery delays, and casting the most profitable part, since it around for remedies. The main is mostly collected from, and cause is the difficulty of delivered to, the most densely recrulting labour to man postal populated centres of towns, sorting offices at the unsueinl where distances are shortest and night hours when most mall has both collection and delivery to be sorted if it is to be delivered costs incurred per item arc the day after posting. therefore lowest

Ten years ago, the answer appeared to lie in the widespread Yet the pustal services are in installation of automatic sorting grave danger of losing most of this truffic to the newest forms equipment. But this suffers from of inter-terminal electronic mail. the defect that it requires facshuile document transmismanual keyboard encoding of a sion, and communicating word magnetic sorting code on letters processors (see Marketvlew, of widely differing sizes. This operation has now replaced Jime 28), because of the growing unreliability of their services, manual sorting as the main and lengthening delivery delays, especially in international traffic. Recent mail posted from seven and 10 days to reach Paris and Brussels, and up to two

bottleneck in letter transmission, especially when senders omit to add the proper PO codes to addresses at the right place. Since automatic sorting equipment has been powerless to restore the reliability of guaranteed next-day delivery to

countries, and within a known number of days in international traffic, the postal authorlties are now looking for aid to the same method that their business clients might otherwise adopt directly electronic mail. Intelpost between London, New York and Washington is a first tep in that direction.

As Table I shows, Intelpost is page and convert its contents a hybrid service combining traditional postal methods of collection and delivery with tents. The bit stream is transelectronic fncsimlle tronsmission. British senders have to sat IV sotellite to the Copitol hand in their intelpost mail to one of three post offices in central London, or send it there from other parts of the country by ordinary mall. For urgent dispatches, Expresspost can of the original appears almost arrange a special collection almultaneously with the transwithin the inner London area at

an extra charge.

At the Stock Exchange post offices, a routeing sheet followed their intelpost mail in person. by all the sheets of each letter Alternatively, it will be sent to

MARKETVIEW

tion end delivery at both enda.

(which must be A4 size) are in-

serted into a Rapicom facsimile

transmitter which takes from 10

to 40 seconds to sean each A-l

into a 512K to 2M bit stream,

depending on the sheet's con-

mitted at 50K bps via the Intel-

post offlee in Washington, ur

onwards via a terrestrial micro-

wave earrier to the World Trade

Centre post office in downtown

Manhattan, where a photocopy

At either of the two US post

mission from London.

BY FRED LAMOND Short of lest minute technical or political hitchas, this week will have seen the atert makes it atili uncertain whether it will nasa uaars. Dotorminad opposition from b followed by a parmanant fee paying to vice. Similar political battles ere holding to intelpost sarvices to end from Paris at tronic mail: the intelpost service of highspaed facsimile document transmission by satellite wideband link between the Stock Brusaels. Exchange post office in London, the World In this Morkstvisw, Fred Lamond 6: Trade Centra post office in New York, and the Capitol post office in Washington, with

cusses the reasons for Poet Office Interest electronic mail, and for the data mind opposition of both private and publicate common carriers. ordinary mail or spacial measanger collac-Initially, the experiment will be free of charge to a small numbar of aslected busi-

> them by ordinary mail to any part of the US. Special messenger delivery is also available at an extra charge within the centrol Washington and Mnnhattan areas.

If and when the experimental free service is followed by a normal fee-paying public service, the UK Post Office is planning to churge a basic £4 fee for each disputch plus C2 for each additional message sheet beyond the first. This fee will include normai postal collection and delivery — or Poste Restante — at each end, with additional Expresspost charges for special messenger collection or delivery within the inner London, Man-

hattan or downtown Washing-As Table 2 shows, trnnsatlantic Intelpost will initially cost substantially more than oirmail for the same documents, but take only 24 to 48 hours from sender to addressee, or even less than an hour if the adressee collects the package himself from in the US, the internation the destination intelpost office, or uses special messegner de-

But intelpost will also cost less

telefux or telex have weigded the attributed cost per messel of the monthly rentals partitelex terminal

Except in the case of person collection or extra chin; special messenger delivered cloost will also take 24 be hours longer than the immete. on-premise delivery offerst one's own telefax or teler b ininal. But that sort of delay quite occeptable for most bness letters or documents with the current seven- to 14-days iny of ordinary airmed sa."

intelpost should thus meet considerable need in the he ness community and be sa cessful if it is allowed to sethe ground, in the face of the considerable political opposits that it is meeting from the earriers in the US and so Continental countries, noti: France and Belglum.

record carriers (ITT World vices, RCA Globcom, and W. tern Union international objecting to the regular.



A possible terminal in every home? The Infotec 3000 is a likely for this part of the market.

in the sender a und addressee's, hand with European messages. And for neither the sender a manufacture of the shortest release and data communications.

mission that the US Positi Federal Communic

The politics behind the battle over electronic mail

Physical, by hand or

Table 1: Postal Intelpost end electronic mell compared

Air Mell

£0.11

£0.11

£0.185.

within each country. Indeed, the

French Post Office, DGP, an-

nounced last September that hi-

telpost would, if commercially

successful, be followed quickly

noste' service between main

post offices in Paris and each of

the 14 most important French

DGT, have their own plan for

French Telecommunications,

by an internal French 'Tele-

7-14 days

1-2 days

ength of Meseege

One pege letter: 1,000 chare

Dollvery deley:

provincial cities.

4,000 chers

and other objections raised in the US Senate against Internal US electronic mail by the USPS, there is still some doubt whether the FCC will allow the experimental free service that It has licensed to be followed by a fee-paying one.

In Belgium, the state-owned but autonomous Régie des Téléphones at Télégraphes, RTT, and the government's Ministry of Posta have been deadlocked since last year as to which of the two should be the US Postal Service's partner in Intelpost. As a result, there are at present no plans or dates for opening an intelpost office in Brussels.

In France, as in the UK, the Post Office and Telecommunications are the responsibility of separate general directorates within the same State Secretariat for Posts and Telecommunications (P&T). which is still run as o government department. The generni directorate for the Post Office (DGP) had assumed Itself to be the US Postal Service's natural partner, and had as far back as ust September's Sicob named May 15, 1979 as the opening date of the free trial service to New York and Washington, and July 1, 1979 as the beginning of the fee-paying service. An intelpost office is ready at the Palais des Congres at the Porte Maillot in

But when the May 15 deadline came, the DGP's sister general directorate for Telecommunications (DGT) simply refused to put a 50K bps wideband link at the DGP's disposal between the Pulais des Congrès and the Intelsat IV earth station.

The US IRC's opposition is understandable because they are private corporations whose bread and butter is at stake. But Belglan and French telecommunications' opposition is much odder, since they are as stateowned and/or run as the Post Offices themselves, albeit with separate budgets. All the odder since they both stood to gain revenue from the lease of the wideband link to their respective Post Offices, without incurring any of the administrative and sales overhead costs of the new. in France rise from 4,000 In 1977 service, nor the cost of providing to 17,000 in 1980 and 56,000 in the special messenger sarvice. probably at a loss.

French and Belgian telecommunications' opposition can manufacturers the design and fear that transationtic intelpost would only be the first stap A4 page with compression, towards the provision of similar whan connected to a 4,800 bps intra-European services, and modem) facsimile terminal, as finally of internal services soon as CCITT has agreed on

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Table 2. Speed end cost comparisons for London-Now York mussinges Group 3 transmission, comprestried from 16.00 onwards every sion code, and hami-shaking

Telex

£11.25

£19.00

Telsfex

€5.60

£8.60

£14.00

standards. There are rumours of plans to sell this for as little as £175 to £280, if the manufacturer could he guaranteed sales of around five nillion units, which means to two ant of every five French telephone subscribers, which would have to include a large number of domestic subscribers as well as all large and small

exploiting the budding electronic mail market. Since last businesses. It is sloubtful whether a autumn they have themselves general public as conservative sold or rented to interested us the French could ever be pertelephone subscribers a Frenchsuaded to install facsimile terhullt Group 2 (3 minutes per A-1 minals in such numbers in their page) fucsimile terminal costing own homes, or even small £3,000 to bny or £130 per month husinesses, even if the anly to rent. At this price, their maralternative were rellunce on ket projections see the number traditional mail service increoalngly subject to unpredict-

able delivery delays.

But it is certain that hardly ony French domestic telephone DGT boffins are also discussubscribers, and only a minority of French businesamen, will do sing with a number of French so if they have the possibility of costa of a much cheaper massgetting a service almost as fost produced Group 3 (1 minute per at a lower cost from their local post office. Hence the DGT's determination to block these new postni services, or alae to

control them themselves, The French DGT's reason for with facsimila terminala is the same as British PO Telecom-

only become realistic in any European country for more than a small fraction of all business mail when subscriber end lines have been digitised to allow 48K hps data and/or text transmission. For this purpose they would have to be relaid with either four-wire or optical fibre cables, a process that will take

most European PTT's until 1990 and beyond By 1980, on the other hand, French Telecommunications

A tew hours dil terence of

House or days depending

Physical cost rising, white electronic cost dropping

ond Prestel sponsorship to get

whose intallation charges have

been heavily subsidised for the

sake of universality of service, to

use their lines more and incur

more call charges, on which the

recoup its investment in sub-

But their reliance on elec-

tronic muil to do so has

monetheless an air of unreality.

Nothing would be more likely to

bring the whole French

telephone network again to a

complete standstill than if every

French husiness large and small

evening to transmit all the day's

mnil ever the dinl-up telephone

network at 1 to 3 minutes per

Terminal-tu-terminal elec-

tronic mail over the dial-un

nuhlic telephone netwark wil

scriber lines.

Office telefox or telefor

will have completed a digital overlay trunk line network, Transmie, for both voice and data communications. With this, and current French plans for the Telcom I domestic communicotions satellita, there ahould ba ample long diatance trunk com-The French Post Office's Tele-

poste plana are a much more realistic way of using thia abundant trunk capacity for speedy electronic mail ovarnight, when wishing to acturate the market the network la little used for voice traffic, and only between principal post offices in aach munications' reasons for the city, thus not overtaxing the Buzby advertising campaign,

Facsimile facts

terminals in Marketview (CWI, phase compression, and trans-June 28). The two standards mit a page in three minutes, adopted by CCITT in 1977 were The CCITT stondard for adopted by CCITT in 1977 were both for analogue facalmile terminals, and not, as implied in the article, digital terminals. The analogue terminals do not tharefore require modems, Group Lerminals use frequency modulation to transmit at 14 with coded compression, which will be able to transmit at 14 when interfaced to e 4,200 bps page in six minutes irrespective. (not 45k bps) modem.

THERE was some confusion in of contents; Group 2 tarminals the specifications of faceimile use amplitude modulation with

Eleçtronic

Under such an arrangement the Post Offices would only have This dispute between the two to deal with the national trank halves of the French PTT, as network authority to obtain that between the Belgian Post wideband channels between city Office and RTT, has a number of lessons for other Euronean centres for Telepost services. The trunk network authorities would have no reason to refuse such capacity, since they would have no financial interest or responsibility for the local sob-

Technologically, long distance commonications, hased increasingly on a choice between terrestrial microwave carriers and communications satellites, are diverging more and more from the cable-based local distribution networks. But these too will require a great deal of enultal investment over the next decade, probably involving their re-laying with optical fibre net-

tions links in order to survive? If the two services are to he split, then the British and French governments (and any other governments contemplating similur moves) should consider splitting responsibility for telecommunications services a national authority res-

when postul services are about

to become more dependent on

long distance telecommunica-

onsible only for the long distance trunk network, akin tu AT&T Long Lines in the USA. and the UK's Central Electricity Generating Board: local and/or regional

telephone companies to run the local distribution exchanges and mark, Portugal and the USA.

governments and PTTs as well. Will similar disputes not spread to other countries as well, if postal services and telecomunications are split between scriber and lines and their usage. different authorities, as the Nora Report has recommended in France, and the Carter Committee in the UK? After decades of running the two services under the same government ministry or state board when they had little in common, is it logical to split them at the very moment

> If the boundaries of local telephone companies were the same as those of local government authorities, especially the metropoliton district authorities in the UK, and local governments were given a financial share in the local telephone company, they would be given an incentive to switch some of

their metropolitan investment budgets from roads and public transport imo a faster enhancement of the local telecommanications network, since the advanced relecommunications telephone service relies to subscriber end lines, as is of the line 1980s may make already the case in Hull, Den- much business travel and commuting innocessary.

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. Africa

A COMPUTING school has been set up in South Africa to help combat the seute shortage of

programmers.

Called impala Computing, the school has been established by Greek computer specialist Dino Aravindinos and runs fourmonth courses designed to teach the student the main aspects of programming, including handson experience on an IBM System

Araviudinos claims that his in Canada school is the only one of its kind in South Africa, and that "the students are supervised by another student who proved himself in the previous month's intake and who is further overseen by highly qualified tutors."

Attributing the country's massive shortfall of trained programmers to emigration - parficularly to Australia and Canada - and to local enmpanies which are not prepared to employ inexperienced people and train them. Aravindinos suggests that his school will affer the situation by giving students the skills required. Applicants for enrolment at

the multi-racial school are put through a pre-selection course.

Mark III centres

GEISCO has udded two more centres to its Mark III time sharing service, in Riyadh, Saudi Arabia, and Caracas, Venezuela. The Rivadh centre takes the form of a wnik-in burenu, but necess to the service by local telephone call is now possible from over 600 citles in 24 countries. Other Venezuelan cities will gain centres next year.

New Zealand claims world's biggest 2900

Trentham computer centre, in Wellington, upgrade, says Trentham centre manager will get a £2 million upgrade to a dual Brian Gibson. processor, despite pressure on the government to prune spending. Many other upgrade requests are expected to be deferred

each, incidentally, supplied by a different operating system. manufacturer. New Zealand central IBM, ICL, Burroughs and Univac.

The 2980 already processes work for the processor still running the 5X27 release.

could cause the loss of 23,000

data processing jobs in Canada

by 1985, induly because an in-creasing number of US-based

companies will hold files on

large scale systems at head

office instead of on smaller

computers at their Canadian

In a report by the Canadian

Consultative Committee on the

Implications of Telecom-

munications for Canadian

Sovereignty. The report also

warns that various kinds of dala

will be placed beyond the pro-

tection of Canada's privacy and

freedom of information laws,

and sees the danger of computer

crime deterrence and detection

In addition, it warns that the

foreign computing services

grenler use of US and other

could undermine domestic con-

trol over disruptions caused by

Another danger that the

being reduced in effectiveness.

This prediction has been made

subsidiaries.

strikes

Threat to

23,000 jobs

TRANSBORDER data flow report foresees is a greater de-

pendence on foreign technicians

which could reduce the overall

pressure to develop computer

Canada's domestic telecom-

munications system could also

he neglected, accurding to the

report, by data being imported

into Canada via foreign owned

One way of creating a lot of

new data processing jobs.

according to the report, could be

the heavy promotion of Telidon,

the Canadian government's videolex service (CW, April 12).

processor is being serviced. This

s not at present possible on

IBM's attached processor sys-

ciaimed to match or exceed that

of the IBM 3033, so that Itel now

has a complete range of large-

scale systems offering a power

range considerably greater than

that offered by IBM's 303X line.

The channel subsystem for the

AS/6 and AS/7 has also been

enhanced, and in particular now

supports IBM's new 3370 disc

storage subsystem. The 3370,

announced with the 4300, provides 570 Megabytas per spindle,

making it the biggest drive cur-

rently offered by IBM.

Perfurmance of the AS/7 Is

From page 17

satellites and rouftop antennas.

systems for domestic needs.

THE New Zealand government is due to become, once again, the proud possessor of the biggest ICL 2900 in the world.

Agriculture and Fisheries, Forestry, Statistics and Scientific and Industrial Research departments. The rapid growth of this Over the next few months, the 2980 at the workload is the prime motive for the

Under devolopment, however, is an online system for the Customs Department, which will become one of the centre's major applicutions in the early 1980s. This will use the Trentham is one of the government's four latest version of the IDMS database system, major installations, each handling the with its teleprocessing enhancements, runrequirements of several departments — and ning under the 5X32 version of the VME/B

Operation under 5X32 will start on the government might be seen to be "hedging its bets" in herdware, with processors from July. For about three months the configuration will run in "twin" mode, with the older

Dual running under 5X32 is expected to begin in November.

Besides the second order code processor, the 2980 will get a memory upgrade to almost 8 Mbytes, and more EDS 200 discs and tape units.

Approval of the Trentham request indicutes the importance attached to the work of the centre, says Glhsun. In particular, trade statistics to be available from the Customs system will be far more accurate and up-to-date than those published pre-

The 2980 was the largest in the world when originally installed, but was soon overtaken. ICL has confirmed that with the latest upgrade, Trentham regnins its leading



MEGALEASING

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AFTER losing out to Northern Telecom in its bid to acquire control of Data 100 (CW, May 25, 1978). US aerospace glan McDonnell Douglas has declared as one of the sultors for US minimaker Microdata Corp.

iTT, one of the suitors alread Identified by Computer Weekly (July 5), has pulled out of the bidding following a sharp ilse in

the Microdata share price.
McDonnell Douglas, makered
the ill-fater DCIO sirliner, has interests in process control digital telephone equipment and medical instruments, andisken to get into the malustream of the computer husiness. I'l' withdrew last week after

the Microdata share price renched \$30.50, some \$5 higher than when negatiations started it is keen to expand its interest in the automated office business. but although it succeeded it armitting daisywheel pinti specialist Come, also lost out. AM International in its bid it nequire Jarquard Systems (CV. December 21, 1978].

Another possible contender for Microdala is Xcrox Corp



Into Arab territory

CONSISTENTLY big exporters, Redifon Computers hes Installed its date entry systame in some exotic locations. And the company has been quick off the mark in the Persien Gult. Our picture shows a Redifon 1850 system natalled at the Oater Patroleun roducing Authority in Oohe, Qatar, it will prepare tapes for pro-cessing on an ISM-370/118 mainframe at Patroleum Devo-mainframe at Patroleum Devo-

by formal launch of the IPL Systems Model II and III IBM-

compatible processors (CW,

June 14). These machines are the

top two models in the line mar-

keted in the US by Control Data

Itel calls the machines the

AS/7020 nnd AS/7030, and they

are offered as direct alternatives

to the IBM 4341. The 7020 is

claimed to match the power of

the 4341, while the 7030, offered

as a field upgrade, providea 40 to

50% better performance, and

main memory of up to eight

Full microcode assists for

VM/370 and OS/VSI arc In-

cluded in the two models, and

Megabytes, double that on the

as the Omega 480.

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lopment. Omen end the R850

Redifon has eleo sold its first R850 in the USSR. The customer le V/O Produtorg, which will uso the system for administering its food import-export business.

delivery of this product.

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expanding electronics industry. Many countries in those areas have become the byword for electronics industry, which low-priced and, in most cases, misses no chances to expand good quality products and are and improve its markets. But the information could be just as suppliers to many of the world's major electrical industries.

Many aspects of this growing market for technical equipment and services are untapped, mainly because of tha difficulty of knowing where the comof knowing where the companles are located.

A new directory published in Japan can help to overcome this barrier. The Asian Electrical and Asian Electrical and Electrica Electronics Trades Directory, 1979/80, lists nearly 4,000 companies in Indonesia, Hong Kong, Korea, Malayaia, the Philip-

The directory was published to meet the needs of Japanese mation, and the products and sarvices offered. Company. names are also listed under pro-

Asian Electricol and Electronics
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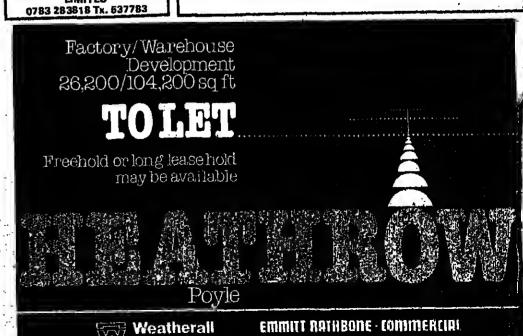
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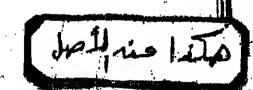
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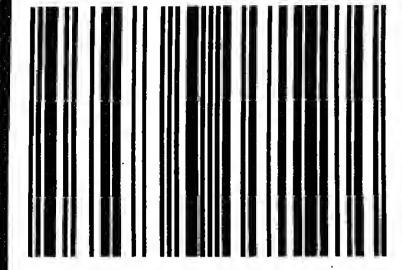
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Ref: RW29/4 -



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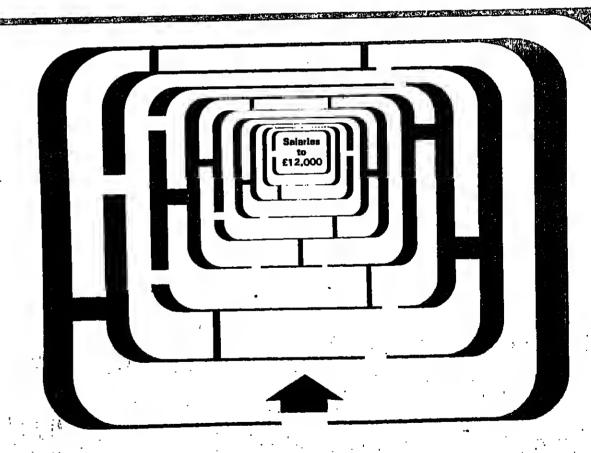
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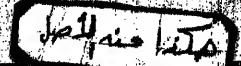
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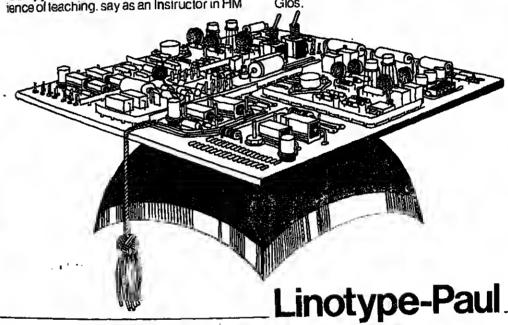
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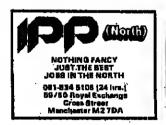
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